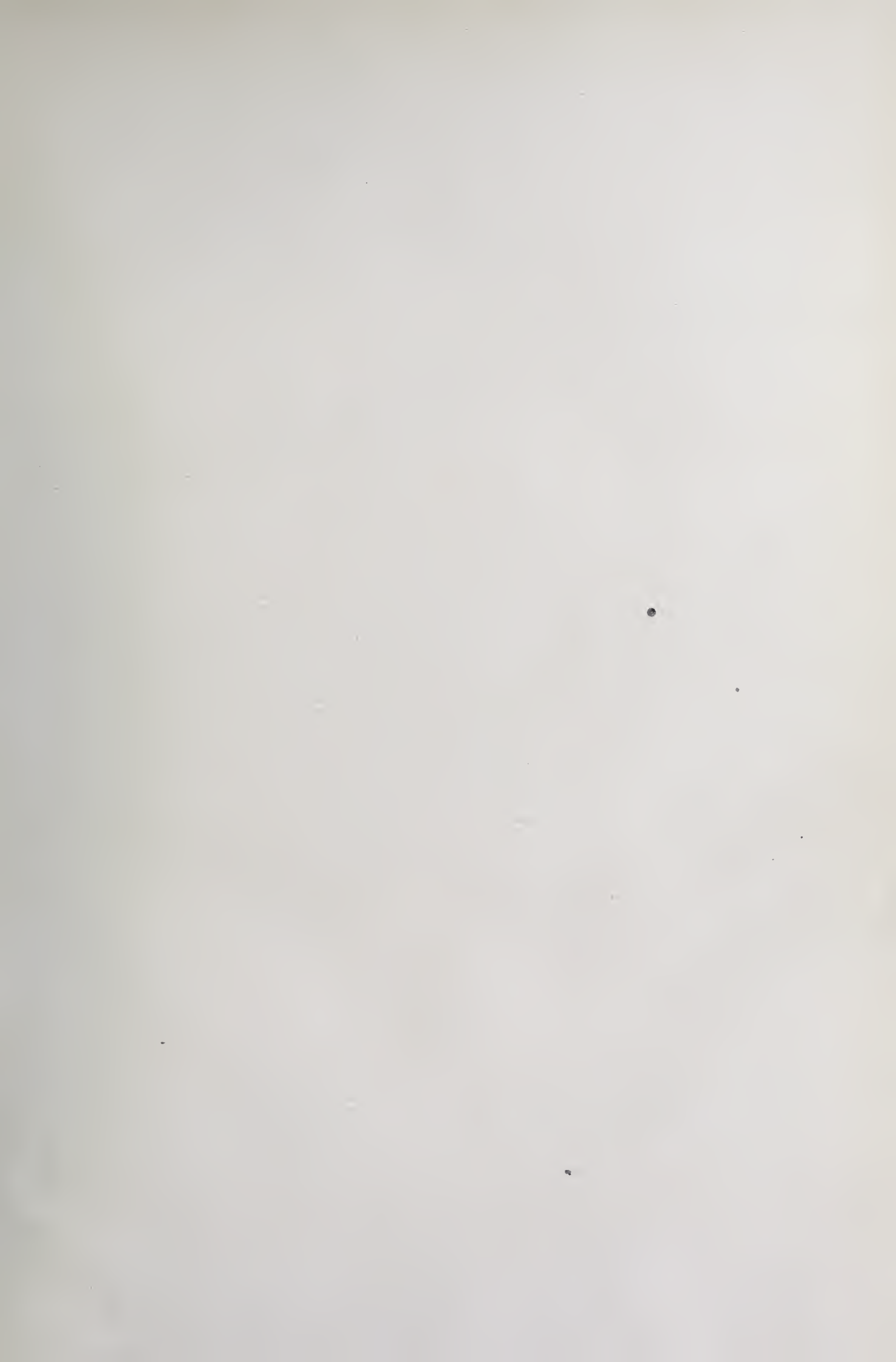


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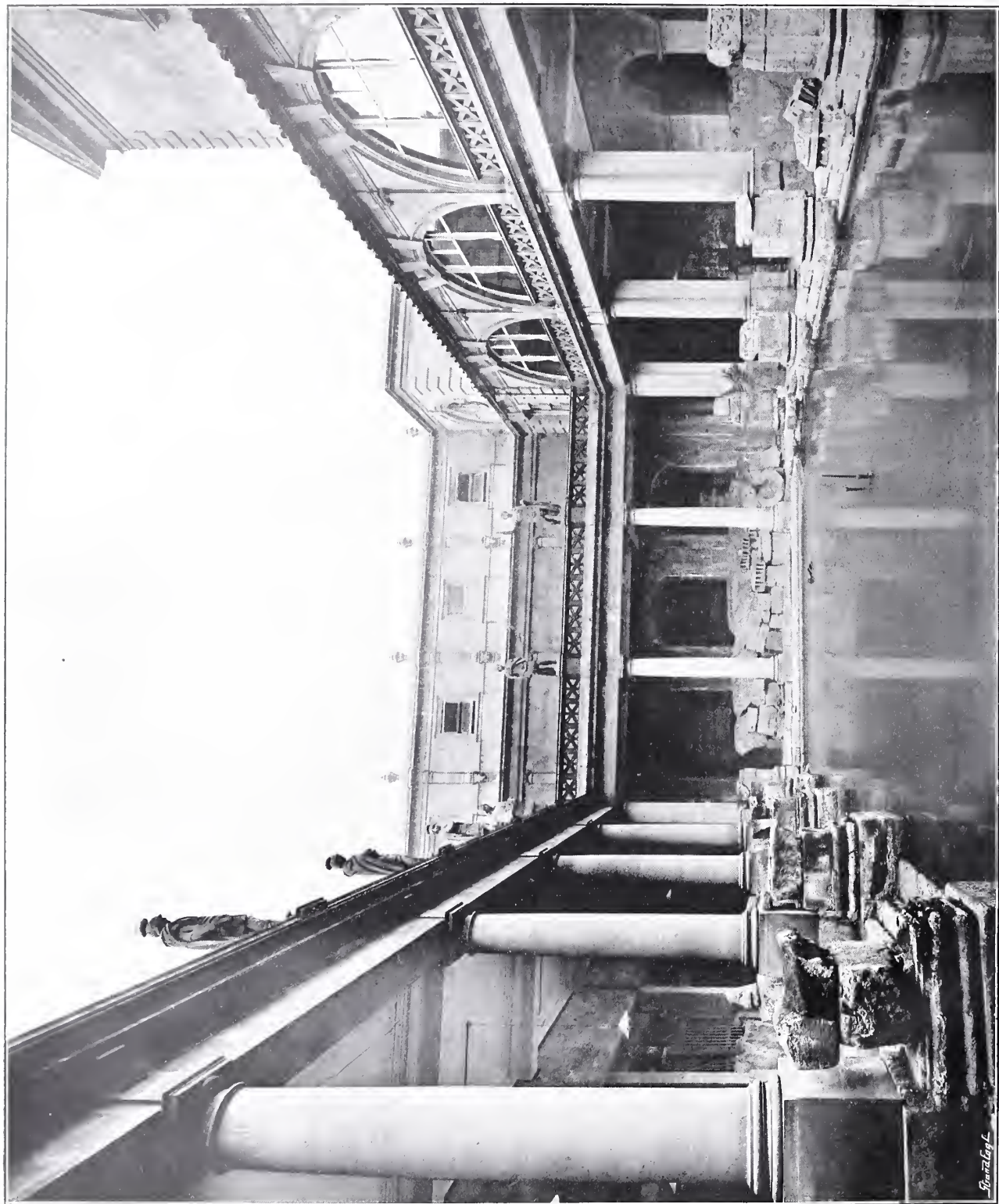



Photo: E. Dockree.

THE ROMAN BATH AT BATH.

General



Decorations and Furniture lately carried out by Messrs. GEORGE TROLLOPE & SONS and COLLS & SONS, Ltd., West Halkin Street, Belgrave Square, S.W.



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Brydon at Bath.—I.

THE death of Brydon, in May, 1901, when his work at Westminster had barely risen above the level of the ground, was a public loss. Born in 1840, he had still apparently many good years before him. So far, he was little known outside a limited circle in London, though he had been a very regular exhibitor at the Royal Academy since 1872. Only three years before his death he was appointed by the Government to design and carry out the most important buildings to be erected since Barry's Palace of Parliament. This distinction Brydon undoubtedly owed to his work at Bath.

He first went there about ten years before his death. At that time, architectural students who visited Bath for the sake of the noble buildings left by the eighteenth century—buildings which have but just found their historian in Mr. Mowbray Green—observed that taste was literally dead. In fact, a kind of opposition to good work had sprung up. The best views, for example, of the famous Crescent were, and are, spoilt by the intrusion of a modern Gothic spire which is incongruous without picturesqueness. The famous north side of Queen Square has suffered, but not so much perhaps, from an intrusion at the western end, now partly hidden by a climbing plant. The front of the Guildhall in High Street was injured by the addition of semi-Gothic archways; while, to the south-east, a Police Barrack, and, later on, a vast hotel, which in style or want of style defies the language of architectural description, helped to indicate that the Bath of the Woods and of Baldwin, of Allen and Nash, was a thing of the past. In pure destruction, too, this era was equally active; and, in making approaches to the hotel just mentioned, the oldest example of a Palladian house was ruthlessly swept away.

Up to that time Brydon's strict views on art seem to have kept him in comparative obscurity. There was no room in the London of the Albert Hall or the Natural History Museum for an artist who had studied Inigo Jones's Whitehall designs, and had analysed the composition of Wren's City churches. He is said to have employed himself in designing furniture, and when he first appears on the walls of the Royal Academy it is with drawings of villas, and especially of studios. A foreign genius, Tissot, was in England in those days engaged in the uncongenial work of drawing caricatures. He appears to have early recognised Brydon's abilities: a studio in Grove End Road led, when Tissot had returned to his own land, to a château in France. Both studio and château figured in exhibited drawings. Summerfield, near

Roehampton, and Lewins, in Kent, followed, and after them some work among the picturesque hills which surrounded Bath. Here he was introduced to such examples of the eighteenth century as Titan Barrow, Widmore Manor, and Prior Park. He must have frequently visited and admired the city itself, where the squares, the crescents, the streets, and many individual houses must have attracted his attention. To a student of proportion the problems here presented were most absorbing, and, at first, must have seemed almost inexhaustible. The Gothic architect of the so-called revival had somehow completely missed them. He had never perceived that proportion reigned at Salisbury in the thirteenth century and at Westminster in the fourteenth, or that pointed arches and window tracery are not enough by themselves to constitute a style without harmony. It is true the modern Gothic never took much hold at Bath. The stiff steeple near the railway station may have acted as a warning to anyone entering the city from the south. But instead of it or of the old local style of Greenaway and Strahan, of Baldwin and the Woods, a kind of anomalous fashion, eclectic perhaps, came into use; and, though it never quite reached the depth marked by the Brompton Boilers or the Imperial Institute, that was chiefly because in the sixties and seventies of the nineteenth century very little building was going on. Brydon, however, now made acquaintance with one element in his subsequent success, the splendid local building-stone. His largest works in London, the hospitals in Euston Road and Henrietta Street, and the houses in Chenies Street, had been carried out in brick. At Bath he worked in stone.

The state of architecture at Bath was thus by no means satisfactory in 1891. Local influences were very strong, and when in the course of that year a competition was resolved upon for additions to the existing Guildhall in High Street, it seemed more than likely that they would prevail. The situation may be briefly described, though the events to which it led are too recent for more than a sketch. The municipal buildings, as they were then, consisted externally of a front by Thomas Baldwin, of minor wings and of certain buildings, including a market and a gaol in rear. The architectural part of the front was admirable, as was the almost completely hidden western elevation in rear. It was built in 1775 and the three years immediately following, and, as Mr. Mowbray Green observes, must have been strongly influenced by the style of Robert Adam, for though it

*Photo: E. Dockree.*

STAIRCASE, GUILDHALL, BATH.

has not the vigour of that of the two Woods, it is more decorative in character. An Ionic pediment forms the central feature, to which, as we shall see, a low dome was added behind in 1895, and a figure of Justice, but not blindfolded, in lead, crowns the gable, and marks the fact that it covers the law court, with apartments for the magistrates and the jury. The staircase is very like a speci-

men of Adelphi Adam's work, the plaster mouldings being exceedingly fine, a form of decoration which appealed powerfully to Brydon, as it had formerly appealed to Wren. To this building it was proposed to make considerable additions.

The city required municipal offices, and there was more than a talk of such things as art schools

and picture galleries. The first question was, naturally, how far it would be needful to meddle with the existing building. The addition involved only portion of the available space, but the idea of a southern wing to Baldwin's centre, with the possibility of a northern wing later, was not evolved until some time and thought had been spent on the subject. With regard to the local influence, it may be sufficient to say that neither by inclination nor apparently by previous architectural training did those by whom it was wielded seem able to supplement, without alteration, the work of Baldwin. As the competition proved, many wholly incompatible schemes were put forward. No fewer than fifteen sets of drawings were exhibited on the walls of a vacant house in Pulteney Street. Of these, one was obviously not only the best from the artistic point of view, but also in its compliance with all the important conditions presented by the scheme. The second and third prizes went to designs which, although they were both very superior to the others, were by no means equal to this one. Of all the rest there would be little to be said, except for a circumstance to be noticed immediately. They were all inferior from want of harmony with the existing work, or for proposing alterations to the central block, or from excessive cost; several of them included a lofty tower, which would have come into unhappy competition with the venerable belfry of the Abbey Church. Of the twelve, one, however, and that, according to several independent critics, the least suitable of all, was undoubtedly favoured by the aforesaid "local influence." From a public point of view its adoption would have been more than a local misfortune. All England is interested in Bath, a fact recognised more or less clearly by the open competition. The principle that external aid might be worth invoking was acknowledged when the authorities decided to hold a competition. But in matters of taste, and especially where taste is largely influenced by personal feeling, competitions are often abortive as a means for securing the best designs. In the case of Bath there could be no doubt as to the destination of the prizes. The first design was Brydon's, the second and third might have been reckoned very good, only that they came into comparison with his; but on account of the feeling already mentioned, there was a moment when it seemed as if neither his nor even theirs would be selected. Happily, after a struggle, but only after a struggle, the first prize design was accepted by the city council. Brydon was duly appointed to add to Baldwin's Guildhall, and to provide in his designs for a north wing as well as for that in which the municipality was more immediately interested.

The problem presented was briefly as follows: A single central building facing west, into High Street, was to be supplemented with wings, north and south, of which that to the south, comprising new municipal offices, was to be erected first. The existing accommodation included a town hall on the first floor and under it a sessions court. There were jury-rooms, robing-rooms, and other offices; but for a city of the size and importance of Bath a great deal more was required. Brydon's elevation showed that he would place all the new municipal offices in the south wing and the further space obtained by continuing the new building along a south front between the end of his western front and the entrance to the police barrack. At the acute angle forming the corner between High Street and Orange Grove he made a quadrant-shaped building with a doorway and hall. Adjoining the hall he placed a staircase which was surmounted by a turret. Without disturbing the old arrangement of the centre block, he made a new police court, adjoining the sessions court, and over it a council chamber. Adjoining the court, on the ground floor, are various legal offices, and a barrister's robing-room is at the foot of the new staircase. Beyond it, on the south front, are the offices of the city engineer. A large, well-lighted corridor gives access to the court, and connects the staircase with a convenient exit at the extreme east end of the buildings. On the first floor, besides the council chamber, there is a committee-room, looking on the High Street, and adjoining the mayor's parlour. Over the quadrant forming the angle between the High Street and the Orange Grove fronts are the town clerk's offices, the treasurer's and other necessary chambers, a small staircase from the eastern extremity of the public corridor giving access to the exit already mentioned. From the northern side of this corridor the public gallery of the council chamber is entered.

It will be perceived that by this plan the existing courts and chambers were not interfered with, while all the conditions of municipal life were provided for, and—what by no means must be overlooked—this was done with a regard for architectural effect and picturesqueness rare indeed in such buildings. The only external addition to Baldwin's central block was the small dome, which shows well between the two new turrets.

These turrets are particularly pleasing. While they are not so lofty as to come into competition with the neighbouring tower of the old Abbey Church, they are sufficiently important to enhance the dignity of the new front, and are, besides, eminently picturesque in themselves. They and a band of sculpture, by Mr. G. A. Lawson, on the semi-circular corner building at either end are



COUNCIL CHAMBER, GUILDHALL, BATH.

Photo: E. Dockree.

almost the only ornamental features of the design.

A glance at the accompanying views will make this at once apparent. Not only are the Mayor and Corporation of Bath well and conveniently lodged, but the new courts and chambers have a beauty of their own of which Bath may well be proud. Visitors to Italian cities have often remarked how every inhabitant is able to point out to the stranger the best view of the local *uffizzi* or

duomo. Perhaps at some future date the citizens of Bath will be able to appreciate the remarkable buildings with which Brydon endowed their city.

The dimensions and some other particulars of the new court and the staircase may be added here. By the kindness of Messrs. Hayward and Wooster, the contractors who carried out the work of the new buildings, these particulars have been obtained direct from the working drawings in their possession. The principal feature of the design is

*Photo: E. Dockree.*

CORRIDOR, CONCERT ROOM, BATH.

unquestionably the Council Chamber. It measures 45 ft. from north to south, and 36 ft. from east to west, reckoning the space behind the columns in a kind of aisle or gangway at the ends. The columns, in fact, which are of scagliola, in imitation of red marble, mark off a central square of 32 ft., over which is the segmental vaulting, beatifully ornamented with emblematic figures representing the arts, sciences, commerce,

and justice, by Mr. Schenck, all with scroll-work in low relief in plasterwork. A fine brass chandelier by Mr. Spence hangs from an appropriate boss in the centre of the vaulting, 22 ft. 6 in. from the floor. The wall panelling and fittings, all carefully designed, are carried out in American walnut, as well as seats for fifty-six members, in mahogany, all having been carved in Bath. In fact, everything in the new buildings has

been made on the spot. Behind the Mayor's seat are the arms of the city of Bath, carved, coloured, and gilt by Mr. Aumonier, and near it are hung the portraits of bygone worthies, several of them very good as works of art.

The staircase, though it is not very large, is so designed as to produce a grand effect. The proportions are simple and are not disguised by ornament. It is finely vaulted; the vaulting, in plain white stone, being supported by Tuscan Doric columns of dark marble, with balustrades of carved mahogany, the only decorative feature being the arms of Bath within a floral wreath, finely sculptured above the stair-head.

Brydon's next work at Bath was concerned with the very remarkable Roman remains discovered in the Abbey Churchyard, adjoining the old Pump Room. The building, meanwhile, of the north wing went steadily on, together with improvements in the markets at the back of the Guildhall and a new entrance to them. Technical and other schools of the sort were established in the north wing, which eventually led to the building of a picture gallery and other useful additions.

Meanwhile, Brydon came out in a new light. He had never joined the Society of Antiquaries, although a very profound knowledge of ancient, classical, and Gothic architecture was among his acquirements. No doubt, at his visits to Bath, the singular remains of Roman work, some of the more interesting parts of which had been but recently revealed, attracted his attention. Those of the citizens who were interested in the ancient baths had, about this time, considerable cause for anxiety. No other town in England could boast of classical—actually classical—antiquities on so large a scale. Yet, according to the highest authority in the kingdom on such matters, namely, the Society of Antiquaries, things were not going well with them. Anyone who wishes to know what had been done to the Roman baths up to 1892, under the superintendence of the City Architect, had better read the volumes of the proceedings of the Society between 1881 and 1887. A little book by the late Major Davis, sold on the spot, gives a somewhat different view of the questions at issue; but, though it is necessary to mention them, there is no need to go further. The controversy led, of course, to more local feeling, but eventually Brydon was called upon to complete the arrangements for preserving the remains of the ancient buildings; and, at the same time, to design a new concert-room which would harmonise with the old Pump Room, and could be combined with a kind of museum for objects discovered or to be hereafter discovered among the subterranean ruins.

Bath owes its very existence to the hot springs.

They rise between the heights of Lansdown on the north and the river Avon on the south. What must at one time have been a low meadow, at a bend of the river, produced unceasingly an outflow of hot water which can only be measured by thousands of gallons daily. The yearly flow exceeds a million tons; it is known to have been going on for two thousand years, and the heat at the source is uniformly a hundred and twenty degrees.

It is evident that not only has provision to be made for this remarkable gift lest it should be wasted, but that the perpetual flow may be so directed as to prevent injury to the buildings which lie in its way. There is abundant evidence that during the middle-ages attempts were made to suppress it, to hide it underground, to build over it. Yet there seems never to have been a time, at least since the days of the Cæsars, when the water was not resorted to for the cure of disease. The Saxons, finding here a Roman fortification or castrum, as at Winchester, Silchester, and so many other places, called this one Akeman's Chester, and the road to it from the east country was known, and in places is known still, as the Akeman's street. Who was Akeman? Why did he bear a name so appropriately descriptive of the pilgrim who fared to Bath to be healed of his pains? No better interpretation of the name has yet been propounded. Dr. Guest says (*Origines Celtica*, ii. 400): "Akeman Street came from Bath, and passing into the London basin by the gap at Tring, joined the Watling Street at Verulam." There is still an Akeman Street at Tring.

Brydon's task at the Roman bath was only to preserve what had been left uninjured, and to provide a place for preserving what might subsequently be found. By 1893 some idea of the value of the antiquities in their charge had dawned on the members of the Corporation. They were not unanimous in this respect, but at least the time was gone by when they had allowed their architect to build walls across one of the ancient baths, and had sold £70 worth of the old Roman leadwork, as in 1884. Restoration had been the order of the day, and the old Roman piers and pilasters had accordingly been "restored," while other "improvements" were in progress which, as was reported to the Society, "would effectually prevent any of the old work being seen." Even in the deliberations of the Antiquaries, "the strong personal feeling" which had been aroused in this matter could not escape notice. "Through the persistent opposition to the proposed plans on account of their destructive character," as we read in the Secretary's report (Proc. Soc. Ant. 1887, p. 341), some of the Roman work was preserved, but the Society felt itself warned off,

*Photo: E. Duckree.*

NORTH END OF THE CONCERT ROOM, BATH.

and for ten years Bath was left "severely alone." Then came a welcome change, for, though the old local influence continued to fret, Brydon had been called in, and at a meeting of the Society in December, 1897, a letter was read in which he drew attention to what he had been permitted to do. None of the Roman work had been disturbed, new columns had been placed on the ancient piers,

just as they stood, and the architect, enclosing a careful photograph, called the attention of the Society to the absence of "restoration" of any kind. In reply, the President conveyed to Mr. Brydon the expression of the Society's satisfaction that "early portions of the work have been preserved intact, and will be safely handed down to posterity."

A Study of Roof Building.

THE roof is the most important part of architecture, as also it is the most ancient. It was the first building need of primitive man, and there is no paradox in saying that roofs were built before walls or foundations. It is still of the first importance, for here, at any rate, our necessities are much the same as those of our prehistoric ancestors. I wish to compare, briefly, some characters of two orders of roof building, both immensely old, yet both, in evolved forms, commonly used among us. They may conveniently be named, as Ruskin named them, the Northern, or high-pitched, roof, and the Southern, or low-pitched, roof—on the understanding, of course, that the difference of pitch is not the essential difference between them.

The Northern roof is an evolution from the primitive wooden hut, a structure which was, in fact, a roof only, formed of rude rafters fixed in the ground, fastened together at the apex, woven with a lattice-work of twigs, and covered with some sort of thatch. The antiquity of the hut admits of no dispute. If we may trust the evidence of the Périgord cave drawings, huts appear to have been built even so far back as the palæolithic age, and are, without doubt, the oldest type of building known in our islands and in Western Europe. In one form or another hut-dwellings appear to have existed from those remote times until well within the historic period; nor even now are they quite extinct. When we reflect upon the long period of uncounted centuries during which our ancestors—palæolithic, neolithic, British, Anglo-Saxon—lived in huts, we may be sure that this type of building was not without merit, and we may expect to find that it left a mark in tradition and hereditary feeling. And, in good truth, the hut-dwelling, as we may imagine it in its more developed form, was by no means a contemptible production of those distant ages; while its influence upon the roof builders of later times is shown in two important peculiarities of the Northern roof: namely, in a conception of the roof, first, as a dwelling-place, and, second, as a structure sustained by abutments.

First, then, the Northern roof is not a mere cover for a building, but is itself always regarded as a place to live in. It is a habitable part of

“the house.” This tradition of roof building, originating from the primitive hut, has survived unbroken to the present day. In England we still build, and have always built, in such a way as to use the roof, or part of it, as a place to live in. The common feeling among us that a roof is not properly made use of unless there are rooms formed in it, is an unconscious survival from a time when our ancestors dwelt in buildings which were roofs only, and would perhaps be hardly understood by an inhabitant of Southern Europe or Asia. The influence of this tradition extends over all the buildings of the Middle Ages, secular and ecclesiastical alike; and is evident in the open timber roofs of churches and great halls, as well as in humbler domestic buildings. Even in the great vaulted churches the crowns of the vaults are commonly carried as high as possible into the roof.

Secondly, the Northern roof is a structure supported, not by horizontal beams, but by powerful abutments and counterforts. The hut required no horizontal beams for its construction; the ends of its rude rafters once firmly driven into the solid ground, the primitive builder's soul was troubled with no apprehension of thrust. It was a roof in which the earth itself provided an unlimited abutment. It is curious and interesting to observe how, throughout the Middle Ages, the builders seem to have approached the problem of roof construction under the influence of this idea. General statements are dangerous, and there are always exceptions; but the rule is probably true that roofs were not constructed in England, or in Northern Europe, on the principle of horizontal tie-beams until late in the seventeenth century.¹ The mediæval roof-builder always seemed to take it for granted that the walls were immovable and rigid, and he certainly did his best to make them so by sheer bulk and massive buttresses. Instead of sustaining his roof upon beams in order to get rid of thrust, he counteracted thrust by enormous counterforts. I can hardly doubt that an inveterate habit like this, leading to so much imperfect construction, had been formed in times when roofs really did rest upon something immovable, upon the solid earth itself, and had become a blind obedience of tradition. One may easily

¹ From this rule, and from my remarks generally about the Northern roof, I except, of course, the nearly flat roofs which became common in England in the fifteenth century. The origin and structure of these roofs require a separate investigation.

excuse the mediæval builder; not easily the modern imitator of an obsolete method.

Further consideration of these two roof-building traditions, inherited from the prehistoric hut-builders, may perhaps explain the high pitch which is a marked characteristic of the Northern roof. Those who have given attention to the subject know that Ruskin was mistaken in supposing that the high pitch was a necessity imposed by the rigours of a northern climate. Both high and low-pitched roofs have existed side by side since early times among the snows of Switzerland; in our own country low-pitched roofs were built at least as far back as the fifteenth century; and throughout Northern Europe roofs of both kinds have been in common use since the seventeenth. But when a roof is a place to live in, or when it is always thought of in that way, manifestly convenience demands as steep a pitch as possible—its *accommodation* is increased by a high pitch. If anyone thinks that a practical idea of this sort would apply only where the necessity really existed, and not, as in the naves of great churches, where it did not exist, I think he misunderstands the force of tradition, especially among people who read little and reason little. Again, the idea of a roof as a structure sustained by force of abutment would probably confirm the traditional preference for a high pitch; because the steeper the pitch the more nearly vertical the thrust on the walls would appear to be, and consequently the greater the resistance of the abutment to it. I believe that in reality it makes very little difference, because as the pitch is increased the height and weight of the roof are increased also, and what is much more serious, the power of the wind upon it is increased. The great aim of roof construction—we cannot too often remind ourselves—is to bring the whole weight of the roof, even under the utmost pressure of wind, as vertically as possible upon the walls.

The Northern roof, interesting as it is, has not accomplished this problem so well as the Southern roof. Of the earlier forms of the Southern roof no trace or record exists; but it is not impossible, perhaps, to reconstruct them in imagination. The first ancestors of our race probably haunted the verges of the tropical forests of Asia; and travellers tell us of primitive tribes still living under conditions not widely dissimilar from theirs. We are to remember that the circumstances of life in tropical and semi-tropical lands make building very different from what we are accustomed to—not warmth, but coolness, is the object; shelter from the hot sun and the vertical rains, not from the cool breeze. We shall probably not be far wrong, therefore, in assuming that the primitive dwelling was something from which the

verandah and the peristyle were afterwards evolved; something not unlike an awning, a flat or slightly inclined roof of wood and thatch, wide-spreading, suspended high on posts, or at first perhaps on stems of trees. Some such construction as this we may suppose to have been the earliest effort at building made by man—a roof only, without walls. Later, when walls came to be built, it would be to enclose probably only a part of the space covered by the roof, which would remain, as before, supported on posts. Change is slow among Asiatic peoples, and I am told that in some parts of India native workmen still build bungalows on this immemorial tradition—the roof fixed upon the posts of the verandah, and the walls which enclose the rooms built up independently of the wooden construction. Space, of course, forbids any detailed examination of the steps by which the Southern roof, as we know it in historic times, was evolved from the primitive construction I have suggested. It is enough to indicate its origin, and that it was probably brought to South-eastern Europe in the early migrations from Asia.

On this assumption we are able to understand some of the characteristics of the Southern roof. It is not a structure to live in, but a shelter for the dwelling-place; therefore, so far as purpose is concerned, it may be flat, and probably it always would have been flat if it had been possible to make it impervious to rain. It always tends to be as nearly flat as possible, its pitch is the least required to make it waterproof. It follows from this that, in fulfilment of its original purpose as a sun-shelter, it is built to cover much wider spans than the Northern roof; and this capacity has had important results. Again, the flat roof, or the roof inclined slightly one way only, presents no difficulty of construction; it has no thrust and needs no abutments; its weight is always nearly vertical upon its supports. No idea of abutment can ever have suggested itself to the builders of the primæval verandah-shelter, suspended high above the ground; and consequently we find the Southern roof independent of abutments. The horizontal beam is always the principal feature of its construction, the original and basic idea of the whole roof. Upon this beam rest the inclined rafters, supported to the necessary height in the centre by posts or struts. This simple principle underlies the innumerable variations in the structure of the Southern roof, from the rude first efforts of primæval man in the Asiatic forests to the elaborately calculated roofs of the Renaissance.

It is interesting to note that although the Southern roof must have been introduced into our island during the Roman occupation, there is no

evidence that the Saxons adopted it when they began to settle and build. Were the Roman roofs all burnt during that terrible conquest, or was the force of ancestral tradition too strong? Certain it is that when we come to the historic period of English architecture we find the Northern roof. I admire—who can but admire?—the roofs that remain to us from the Middle Ages, but with some reserve. We may say of them that their construction is as good as the conditions would allow: skill, even genius, is manifest in them. But we must remember that thrust, though it may be diminished by ingenious framings, is a persistent force: it tends always to increase, while the resistance of abutments tends to decrease. Many mediæval roofs probably failed, many were rebuilt with the flat roof of the fifteenth century, many more in later times, and perhaps only the stronger specimens have survived. A condition approaching to rigidity is postulated in these constructions, rigidity both of material and of jointing; and this condition is not fulfilled by even the hardest oak. It could only be fulfilled—if at all—by steel with riveted joints. Our admiration of these beautiful roofs, like Westminster Hall, must not make us insensible to their defects—imitation of arched structure, which is false in carpentry, traceries and mouldings repeated from mason's work. Nevertheless the Northern roof long retained its place in English building. Even the Renaissance with its Italian ideas did not disturb it. The English of Elizabeth's time were willing to take from Italy the detail of their ornaments—the pilasters and architraves—but they were tenacious of their own methods of building; hence the Elizabethan period, structurally considered, is a continuation of the mediæval. One change, however, an important and instructive change, did take place during this period in roof construction, and it is worth consideration. The Elizabethan roof is the same, in purpose and structure, as the mediæval roof; yet how different are the mental pictures that we form of the two! The typical mediæval roof has gables at the ends and long horizontal lines of eaves or parapets at the sides, seldom broken by a gable unless there is a real projection, or an absolute necessity such as a window or a chimney. The typical Elizabethan roof, on the other hand, has rows of gables all along the sides as well as at the ends—it bristles with gables. Of course a general statement like this is qualified by numberless exceptions; nevertheless I think everyone will admit, on consideration, that this difference of *tendency* exists: in the mediæval roof to a horizontal and unbroken eaves as far as possible; in the Elizabethan roof to rows of successive gables placed transversely to the longitudinal roof. A change like this was not

due to classical ideas, which would have opposed it: nor is it to be considered a mere freak of fashion. It was the result of a remarkable change of plan.

Buildings of a single storey in height are capable of indefinite extension on plan in any direction, because in every part they can obtain access to light and air by skylights or clear-storeys. Thus there is no limit of plan to a weaving-shed, a railway station, or a church. But buildings of more than one storey are conditioned in their width on plan by the necessity of light and air; and consequently must be either one chamber, or two chambers, in width—with or without a passage of access in either case. Now, excepting churches and castles, the single-chamber type of plan was almost invariably followed during the Middle Ages: religious houses and secular edifices, colleges and hospitals, all were arranged on the same general plan of single-chamber buildings, surrounding quadrangular courts. But in the Elizabethan period, though the single-chamber plan was retained to some extent, it was very largely superseded by the double-chamber plan; or as it appears to have been called (as in Bacon's Essay) the "double house." The idea of the double house was probably brought from Italy by the travelled nobles of the court, or by their Italian architects; its advantages, however, were unmistakeable and convincing. The Elizabethan builders turned the traditional quadrangular plan into a double house by pushing together the two "single houses" on two opposite sides of the quadrangle, and so forming a double house with wings. The result was the well-known **H** plan, the **M** plan, and other variations formed from the single or double quadrangle. But this change of plan involved a change of roof. The builders of that time were only accustomed to roofs wide enough for the "single house," and seem to have been always timid of wide spans; as, with their method of construction, they might well be. To put a roof in one span across the double house was probably beyond their power, it was certainly beyond their intention. Neither did they, in adopting so many Italian ideas, adopt the Southern roof. It was impossible to put two "single-house" roofs together side by side on account of the centre gutter. Sometimes one half of the double house has a roof and the other half a flat. But the solution which appears to have best satisfied them, and which was a permanent addition to building ideas and roof construction, was to place the "single-house" roof along the centre of the double house, and to fill out the space each side by rows of gabled roofs, with gutters between, transversely to the main roof. Or the "single-house" roof was placed on one half of the double

house, and the transverse gabled roofs on the other half.²

It has not unfrequently happened in the history of building that the solution of one difficulty has led indirectly to the solution of others. So it was in this case. No sooner was the system adopted of roofing by means of a succession of gables transverse to the main roof than two advantages became manifest from it. First, the window-light and convenience of the roof-storey were increased to such an extent that the chambers in this storey were hardly inferior to those below. Second, the builders had unconsciously solved the great difficulty of the Northern roof—the difficulty of thrust—by devising a roof which, in constructional *principle*, either annihilates thrust or reduces it to an insignificant minimum. It is probable that these advantages were instantly perceived, for we find the new system of intersecting roofs applied as freely to buildings of the “single-house” type as to the double houses: and it should be an impressive lesson to us to observe the process by which the Northern roof in the last phase of its remarkable career attained structural equilibrium and independence of abutments.

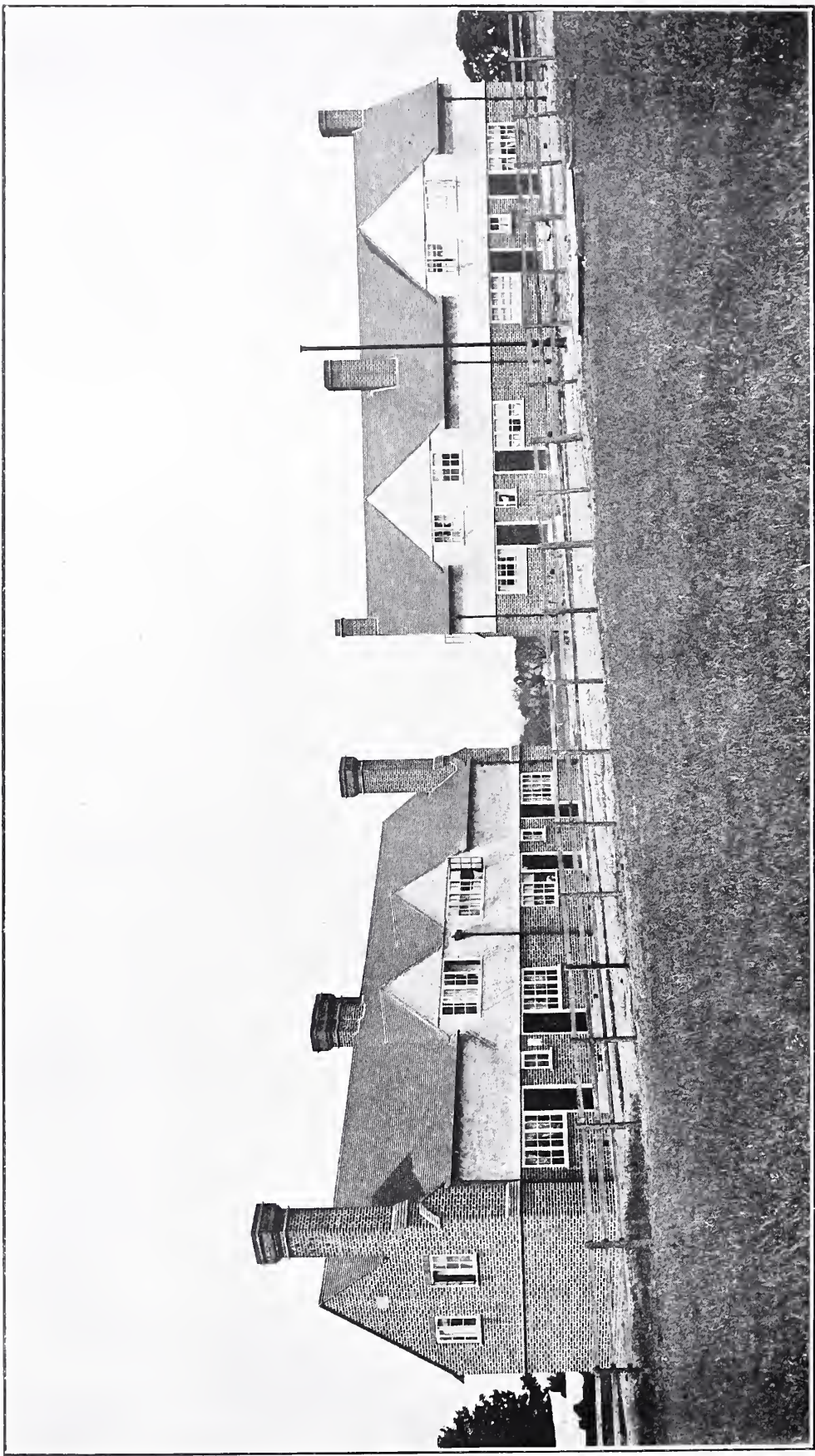
The Elizabethan age, which in architecture includes the early Stuarts, was the final period of the Northern roof; the end, that is, of its general acceptance as the one model of roof-building. It is impossible to assign limits of date to any form of roof: there is always a tendency in a well-understood type to become localised, and to persist long after the introduction of new methods. Roofs built on mediæval or Elizabethan principles were not uncommon throughout the eighteenth century, and perhaps have never become extinct in some localities. But we may conveniently fix the Restoration of Charles II. as the point at which the old traditional supremacy of the Northern roof ended. It was not immediately succeeded in general building by the true Southern roof as introduced to England by Inigo Jones; but by a composite form, having some of the characteristics of the Northern roof and some of the Southern: Northern in purpose but Southern in structural principle. This may perhaps be called, for the purpose of distinction, the Wren roof; not, of course, as “invented” by that eminent man, but as covering the period of his long activity, and associated with much of his work. The Wren roof came to us from France, and is a charming compromise. In purpose it follows the Northern idea of being a place to live in, and is

therefore high-pitched; in construction it is on the Southern model of horizontal tie-beams. But the introduction of tie-beams made an important difference in the disposition of the roof-chambers, which could no longer be placed partly within the roof and partly below it, as was usual in mediæval and Elizabethan roofs. The tie-beams lying on the tops of the walls were therefore made to coincide with the floor-joists of the roof-storey, which was thus formed entirely within the roof; just as in fact the primitive dwelling was formed. It is evident that garrets of this kind could have been of little use in the narrow roofs of the “single house”; but the Wren roof, sustained on horizontal beams, and not dependent upon abutments, was able to include the whole width of the double house in one great span. The pitch, though not so steep as formerly, was still a high one; seldom less than half a right angle, seldom much more; and, as the double house was often a considerable width, the triangle formed in such a roof afforded an ample space for the formation of pleasant chambers. The constructional details of the Wren roof, and of the roofs of more precise Southern type which succeeded or accompanied it, are a fascinating subject which must not be entered upon here. It is enough to say that the eighteenth century was the grand age of structural carpentry in England.

Modern roofs are often disappointing from not being constructed on any clearly-defined principle. The plan of the building may indeed form a convenient succession of rooms, but it seems as though the roof had not been considered with it until too late, and then only by way of getting over difficulties which ought never to have existed. No plan is likely to be successful unless the roof has been foreseen from the first; the roof with all that belongs to it, the dormer-windows, the gables, the chimneys. The student must learn to think of a plan as an arrangement of such and such rooms placed, not anywhere, but within a roofed structure; and he is to remember that every angle, every projection, every fireplace, will affect the roof. At the beginning of this article I have remarked that, historically, the roof preceded all other parts of building; I conclude by advising the student to give it a like precedence in his mind. We have been taught to classify buildings by parts of secondary importance; by the contour of an entablature, by the pattern of a tracery. Would it not be well also to classify them by the fashion of the most important part, the roof?

J. L. BALL.

² It may be suggested that the double-house plan, and perhaps this method of roofing it, was used before the Elizabethan age in the street buildings of London and other large towns. Possibly; but the indications that remain—inns, for example—show the quadrangular form even in towns. It must be remembered that land had a very different value in the earlier Middle Ages from what it had in the later.



COTTAGES AT THE FIRST GARDEN CITY (LETCHEWORTH). GEOFFREY LUCAS, ARCHITECT.

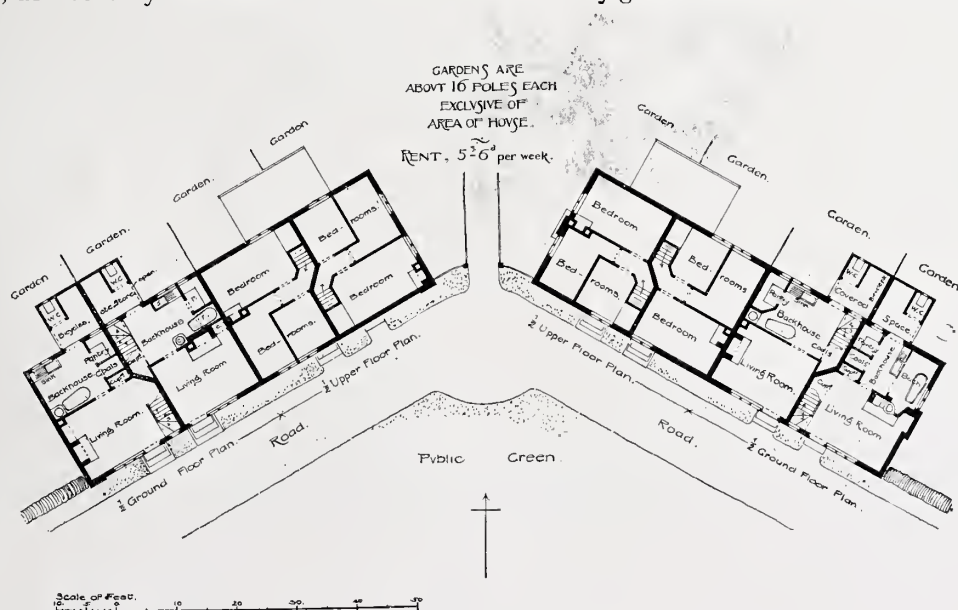
The First Garden City.—I.

WHEN the first article on Garden City, written by Mr. Ernest Newton, appeared in the December number of THE ARCHITECTURAL REVIEW for 1902, the whole scheme was still somewhat indefinite. The prospectus of the Garden City Pioneer Company Limited had been issued barely six months, and the estate finally selected was not acquired by the company till September 1903. Since Mr. Newton wrote, therefore, there have, naturally, been certain alterations not only in the state of public opinion towards the enterprise but also in the actual plans of the city itself. Scepticism and cheap sneers at "philanthropy at five per cent." have been followed by confidence. As Mr. G. K. Chesterton truly pointed out not long ago, there is nothing freakish whatever about the conception of Garden City. All cities grow up round a definite object, be that object a temple, or a racecourse, or whatever it may be. Garden City, therefore, which is springing up round the idea of the promotion of social improvement, so far from being a wild fantasy is simply pursuing a normal development

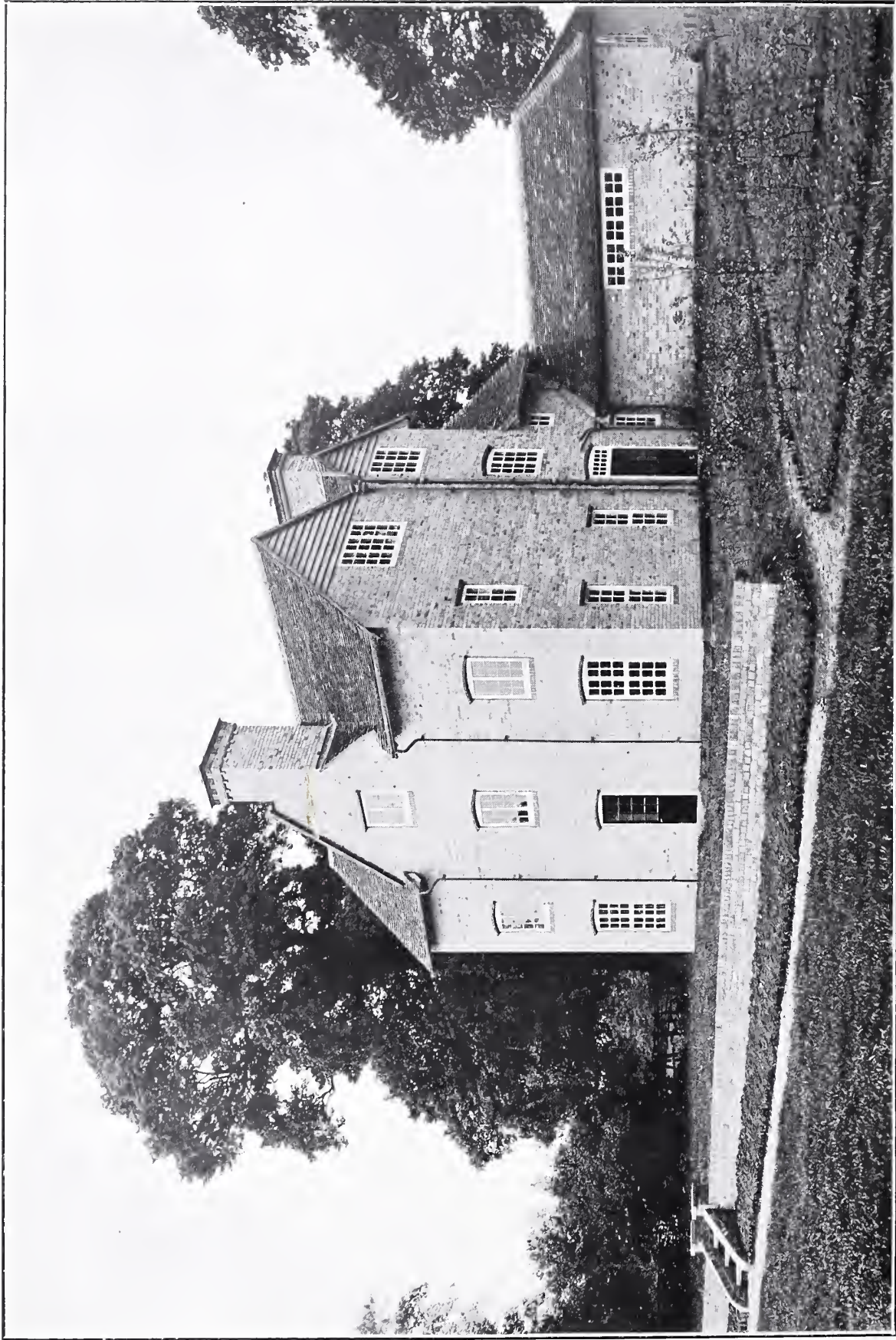
Now, the present article is primarily concerned with Garden City as it exists to-day, and with its future development so far as that can be accurately foreseen, as judged from the architectural standpoint. Accordingly there will be no need to refer to the original designs except in so far as those designs either have been altered for the better or worse, or else, if retained, call for special comment. And special attention, it may here be mentioned, will be given to the Exhibition of Cheap Cottages commencing this month at Garden City, as not only has this movement been

attracting very general attention recently, but many of the cottages exhibited are meant to be permanent.

If, then, we turn first to the general scheme we shall find that a great improvement has taken place. As originally conceived by Mr. Ebenezer Howard in his "Garden Cities of To-morrow," the plan of the town is described (a description, as he says, which is, however, merely suggestive and will probably be much departed from) as consisting of concentric circles. This arrangement, as Mr. Newton pointed out, would hardly have proved a success. "The natural form of a building is rectangular, and the buildings have shaped the streets on which they abut. Miles of curved streets would probably be monotonous and would certainly be difficult to treat architecturally." It is also worth remarking that the projected "Grand Avenue" which was to have been 420 ft. wide and to have formed a belt of green upwards of three miles long has been abandoned. The present plan, so far as we may judge from the roads and buildings already finished and from the latest maps, is much more rational. The centre of the town will be taken up by the municipal buildings, upon which a number of straight roads converge like the spokes of a cycle upon the hub, and round this centre will be conveniently grouped such buildings as the public hall, institute, museum, school, post office, and so forth. This part of the town all lies south of the G.N.R., which runs right through the middle of the estate, and half a mile or so eastwards come the factories. By this arrangement the factories not only gain direct access to the main line through



COTTAGES AT FIRST GARDEN CITY. GEOFFREY LUCAS, ARCHT.

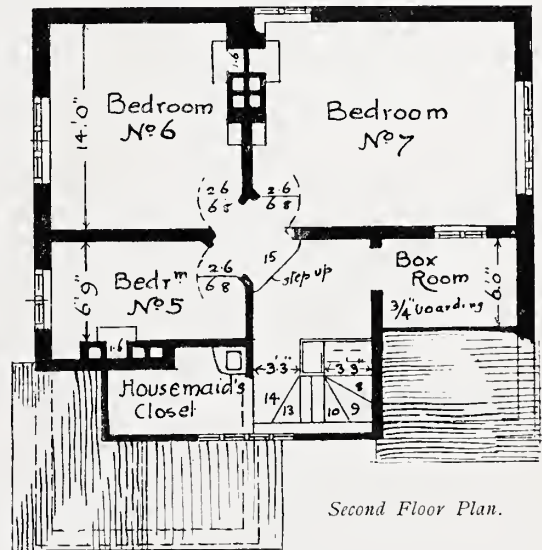
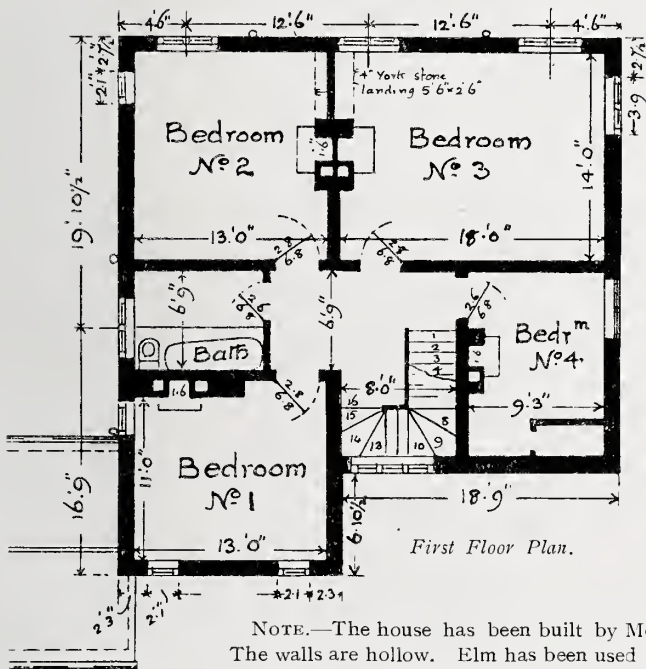
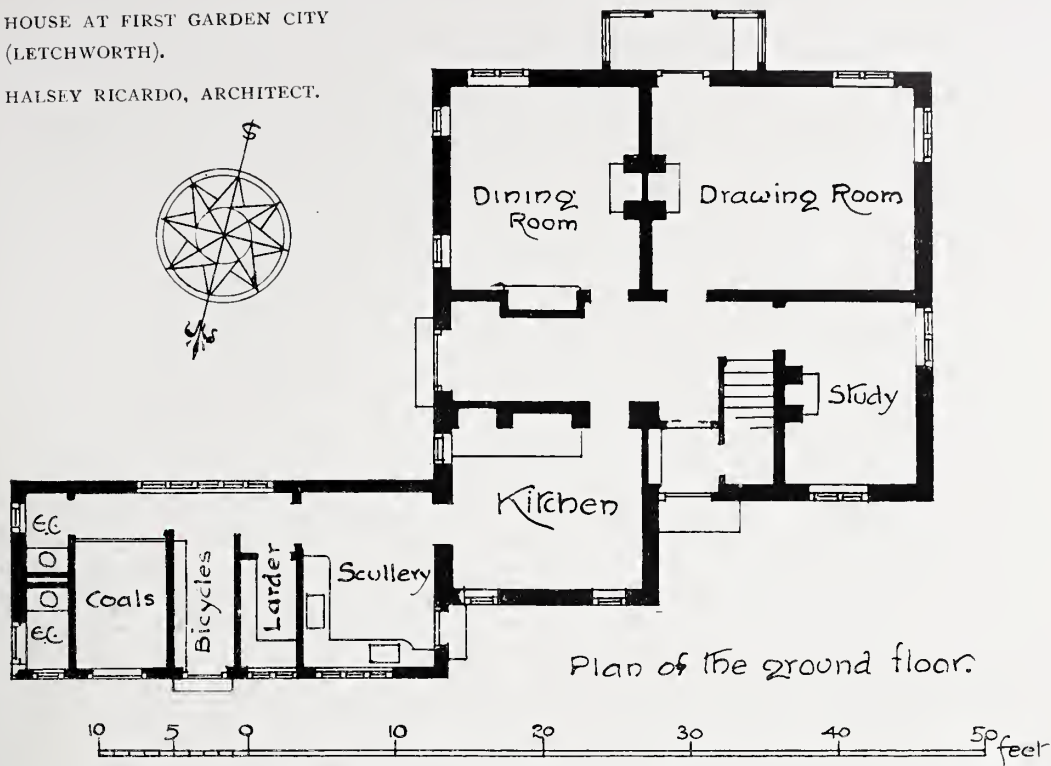


HOUSE AT FIRST GARDEN CITY (LEITCHWORTH). SOUTH FRONT.
HAILEY RICARDO, ARCHITECT.

NOTE.—The oak porch to the door on this front has yet to be fixed.

HOUSE AT FIRST GARDEN CITY
(LEITCHWORTH).

HALSEY RICARDO, ARCHITECT.

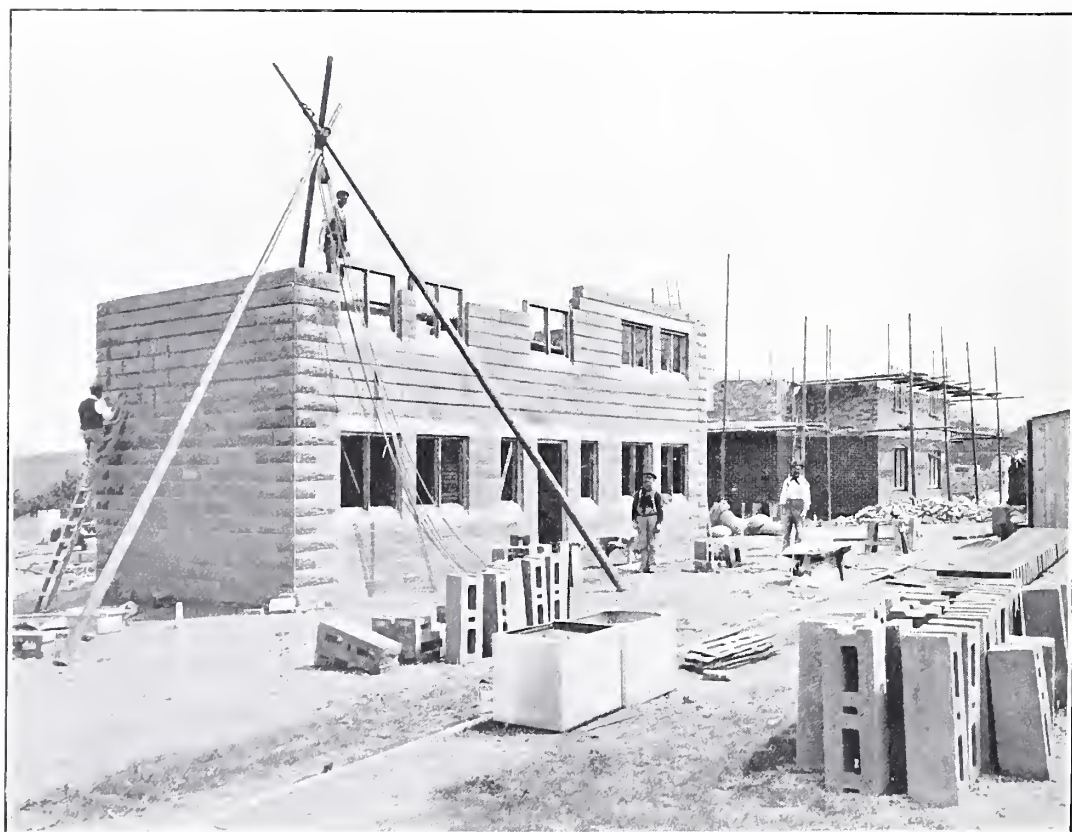


NOTE.—The house has been built by Messrs. Wm. Seymour & Son of Hitchin, of local white stock bricks. The walls are hollow. Elm has been used for the weather-boarding in the gables. The house has been fitted by Messrs. W. A. S. Benson & Co. with a gas installation on somewhat new principles. The difficulty of having gas lights in low rooms has been got over by using inverted Welsbach mantles.

their goods station and sidings, but also are so placed that their smoke, smell, and noise will be carried away from the town by the prevailing wind. Two main roads, one running north and south and the other east and west, meet at right angles near the railway line. To the north of the railway are now to be seen the cheap cottages, the exhibition of which commences on July 15, and the success of which is expected to play no small part in solving the "Back to the Land" problem. As most of these cottages are not merely for ex-

hibition but are also intended to be permanent, we may give them our first attention.

The exhibits fall into three main groups: (a) the now famous £150 cottages first advocated by Mr. J. St. Loe Strachey, (b) pairs of five-roomed cottages not to exceed £300 the pair, (c) group of three or four cottages, no one cottage to contain more than six rooms, including scullery, and not to cost over £35 per room. Of these group (a) is the most important. The final award will take into consideration such points as appearance,



HOUSES IN THE CHEAP COTTAGES EXHIBITION.

accommodation, comfort, durability, material workmanship, and skilful planning so as to catch the maximum of sunlight possible. Of the £150 cottages entered for the exhibition seventy-two are, at the time of writing, either completed or in course of construction, and five more are expected to be put up by July 15. It should perhaps be added that the ideal requires (1) one living-room and scullery or kitchen-scully not under 7 ft. 6 in. high; (2) three bedrooms with two fireplaces, and the same height as the living-room, and with a cubic space of 2,000 feet. Individual criticism is of course impossible, and it will be only possible here to single out a few cottages for especial mention.

One particularly charming cottage being built by Messrs. Shrouder and Matthews is timber-framed and weather-boarded. The architect, however, Mr. O. P. Milne, has chosen wood not merely for appearance sake but in order to obtain increased space. The brickwork in this case extends only to chair-rail height, and from this point the walls break off to 5½ in. studwork; so that, as an all-brick wall would mean 10½ in. when rough-cast, etc., ten inches are saved on a room—which is no inconsiderable advantage. On the exterior of the ground floor the cottage has rent-lath and rough-cast, while on the upper storey there is weather-board creosoted, the planks overlapping 1½ in. Inside, of course, the cottage is plastered. The living-room is 15 ft. 6 in. by 12 ft., the scullery 9 ft. 6 in. by 8 ft., and the three bedrooms upstairs (each of which has its separate door facing on a small landing, so that one has not to pass through one room to get to another) are respectively 14 ft. by 9 ft., 14 ft. by 6 ft., and 8 ft. by 9 ft. It will be noticed what especial importance is attached to a large and airy living-room. The Garden City authorities, indeed, are extremely keen on this feature, and in this respect they will perhaps encounter a certain amount of opposition. The love of the artisan class for a separate “parlour,” be it ever so small, is well known, and it remains to be seen if they will cheerfully acquiesce in the new and beneficial arrangement. Next door, we may note, is another similar cottage by the same builders and architect, which contains less woodwork, but which has the old-fashioned weather boards with brackets over the windows.

A decidedly striking cottage is that built by the Concrete Machinery Company. The concrete blocks of which it is formed are 32 in. long by 10 in. thick by 9 in. high, and have all been made on the spot by an ingenious instrument, by means of which two men can easily turn out one hundred blocks a day. As the instrument is, within certain limits, readily adjustable,

the blocks can be turned out in different sizes and shapes if required, and thus can be put together without any cutting to waste. In good dry weather the blocks are fit for use in about ten days from the time of their manufacture. But, while the actual construction is thus made a very simple matter, the appearance cannot be so unreservedly praised. For a small cottage the use of such sturdy blocks seems quite unnecessary, and the cottage itself looks rather like a small prison. Altogether it is “too, too solid.” The partition walls, it should be noticed, are made of bricks. It is not easy to see why this should be so. It would be perfectly simple to make another machine which should manufacture blocks of an altogether smaller size, and in this way the company should be able (according to their present claims) to still further reduce the cost of construction. Still, in any case, the experiment is an interesting one, and is particularly valuable because it not only simplifies the actual process of building, but saves considerable trouble by enabling the bricks to be made up as required on the site itself.

Of the other cottages, perhaps there is no one which calls for very special attention. Among the list of builders, it may be noted, is the New Expanded Metal Company, of York Street, Westminster. The idea sounds promising and ingenious, but, unfortunately, no such cottage had been commenced when the present writer paid his visit. It is to be hoped, however, that the building will have been put up by the date of the competition. To give a general criticism it may be enough to say that, on the whole, the cottages promise to fulfil their object quite adequately. Here and there, perhaps, the workmanship appeared to have been somewhat slovenly, though in some cases, no doubt, this was due to the work being “rushed” in order to be up to time. And in some cases, also, the designs were much too stereotyped and of the “doll’s-house” order. Lack of imagination can hardly be excused by the necessity of sternly keeping down the cost price, and when one considers what an excellent opportunity the exhibition will afford, both to builders and architects alike, it is to be regretted both that the designs incline to be rather dull, and that more people have not had the enterprise to seize a golden chance of distinguishing themselves. It is much the same also with the £300 pair cottages. There is far too little originality shown, and in some cases where an attempt has been made to strike a new note the effect has been gained at the expense of the house accommodation, especially of the bedrooms which develop into rooms with hardly anything straight about them but the floor. If the competition was worth

entering for at all it was surely worth a man's best and most careful thought.

The exhibition, however, is not everything. Garden City is now sufficiently advanced to be a fair subject for criticism. A rough outline of the town has already been given, and a few more words of description will be enough, especially as so much has lately appeared in the different newspapers. The plan has been drawn up in harmony with the contour of the country, and can now be executed without the destruction of any existing trees or of such existing features as Letchworth Park and Norton Common. As the official guide book puts it :—

For the Central Square of the town a level plateau has been chosen near the existing station. It is marked on the spot by three isolated oak trees, and lies between the contour lines which mark 290 and 295 feet above sea level. From this plateau the ground slopes gently down on all sides, except towards Letchworth. The roads radiating from this Central Square, which will give ready access to all parts of the town, have been so planned that glimpses of the open country will be obtainable along them from the heart of the town, while they will afford to those approaching from the outskirts good views of the central buildings.

And again, to quote from the same authority:—

Care has been taken to plan the roads so that they will have easy gradients without much departure from the natural ground level, and except where the nature of the contours or other definite reasons have suggested curves, straight roads have been adopted, in many cases for the special purpose of affording views

of the parks, commons, country, and main buildings, which may add so much to the charm of the town. Some of the roads shown on the plan may not be considered necessary in actual practice. The width of the roads will probably vary from 40 to 60 feet, with the exception of the Main Avenue, which will vary from 100 feet to 150 feet wide. During the earlier stages of development the roads will not be made the full width, but the Directors will preserve ample space for future widening, and so avoid the necessity of repurchasing land for that purpose.

It is proposed to have considerable variety in the character of the roads, and while the actual roadway will be adapted to the probable volume of traffic, the total width will be increased in many cases by grass margins between the roadway and footway, in which trees will be planted, or by continuous strips of grass or garden between the roadway and the houses.

It is, of course, obvious that Garden City will not truly begin to be a city until it has got a population of workers. The purely residential buildings are of secondary importance. It is satisfactory, therefore, to be able to say that the gas-works, which are to supply six million cubic feet per annum, are expected to be ready this month, and that the manufacturing district generally is rapidly approaching some degree of completion. But the workers must of course be housed, and, while as yet no large residential houses have sprung up, workmen's houses are being built with astonishing rapidity south of the railway. These houses, either put up by Garden City Company or by private builders, compare very



OLD CHIMNEY AT PUNCHARDEN HALL.



A COTTAGE IN THE CHEAP COTTAGES EXHIBITION.

favourably with the competition cottages, and, so far as could be judged from brief conversations with some of the inmates, are giving entire satisfaction. The applications for allotments (no sites on the estate, be it noted, are sold outright) are coming in, it is said, at the rate of about twenty per month, so that the present activity is as nothing to what will shortly be witnessed. A city of some thirty thousand inhabitants is the goal aimed at, and it looks as if this aim were now well on the way towards realisation.

But no description of Garden City, however slight—and there is the material for many fat books in the subject—would be complete without some reference to Letchworth Hall and church. Dating back to the fifteenth century, Letchworth Hall is as fine as many a much more famous building. It is one of those low, red-brick, somewhat straggling buildings of which novelists are so fond, with fine chimney stacks, lattice-work windows, quaint doorways, and that wealth of roofs on different altitudes which is one of the greatest charms of old English country houses. It has now

passed, after many changes, into the hands of the company, and settled down as a temperance hotel which prides itself upon its old baronial hall and its Jacobean mantelpiece. Even more venerable is the old church only a few yards away, which was built in 1280. Letchworth Church has only one fault—and that, unhappily, only too common a one—it has been spoiled by some quite unworthy stained glass windows. Outside, and especially in its “spire,” if one may so signify the little wooden structure that bestrides the roof, it is not unlike the church at Perivale, near Ealing, and both churches, curiously enough, look out upon golf links. Inside, the old stone pillars and the simple old wooden pews, and even the floor with its tombs adorned with brass plates picturing and speaking of the departed dead, form a solemn and impressive link between long-bygone ages and a new-born town, the future influence of which upon the whole country may yet prove beyond what has been dreamed of by the most optimistic of modern sociologists.

M. H. H. MACARTNEY.

Eighteenth-Century Architecture of Bath.

The Eighteenth Century Architecture of Bath. By Mowbray A. Green, A.R.I.B.A. £2 12s. 6d. net. Bath: G. Gregory. 1904.

MUCH care and research must have gone to the making of Mr. Mowbray Green's stately and interesting volume on the building of the modern city of Bath. The social conditions which made possible, and the men who initiated, designed, financed, and carried out, the various great schemes are also dealt with, thereby helping us to a clearer understanding of the whole process of the city's architectural evolution. Reproductions of maps of different periods are a further aid. One of these by Gilmore, dated 1694, has on its margins views of the principal buildings standing at the time, and one cannot but regret that practically nothing is left of the sixteenth and seventeenth century civil and domestic work, for it looks very attractive even in these little engravings, with closely-set and many-mullioned bay windows, gables, and other features of a stone-built mediæval town.

The transforming of Bath was chiefly the work of the two Woods, father and son. The former combined the functions of architect and builder—speculating builder to wit—with great success; and although at times in financial difficulties, managed to win through and died in a fine house of his own design. He was not only a man of big ideas, but gifted with capacity and energy to carry them out; and in the obtaining of such large sites, even helped as he was in some cases by the authorities, landowners, and clients like Ralph Allen, there must have been many difficulties to overcome and rival interests to reconcile, apart from the problems of design and construction, as indeed Mr. Green shows. Of course the prosperity of Bath from the earliest times has come from the virtues of its waters, and so along with the building of houses went the providing of new, the improvement of the old baths, and the raising of fine places of resort and entertainment.

Wood's theory of design may well have been "Take care of your masses and proportions, and the details will take care of themselves," for much of the detail is dull and uninteresting, and its endless repetition would be oppressively monotonous were it not for the fine lay-out and able handling of the masses and proportion. Much of this detail has indeed been sadly mutilated—window sills

cut down, balustrading removed, the old subdivided sashes replaced by hideous sheets of plate glass, destructive of all scale and proportion in the openings. In spite of this the fine effect of the whole is not seriously damaged. Compare Wood's drawing of Titan Barrow and the photograph, and the many other examples throughout the book.

The interior work is more varied, and both plaster-work and joinery (staircases in particular) are mostly refined and charming. The very beautiful staircase in No. 15, Queen Square, according to Mr. Green the finest in the district, should be noted, for this is in the elder Wood's first residence in Bath. The rest of the interior work of this house is very rich and good, and no doubt the architect spent much care and thought—and money—on its furnishings. The plans which the author has measured and drawn are very interesting records. Some of the arrangements would not suit modern notions. For instance, a bedroom whose only access was originally through the drawing-room, with yet another bedroom opening out of the first. This did not remain for long unaltered, and much cutting through of walls ensued to give separate accesses.

Ingenious, too, is the dovetailing into each other of the houses in the Circus, to avoid the awkward shapes set up by radiating party walls. Party wall! "the very word is like a bell, to toll me back to"—the limitations of bye-laws. Another excellent feature of our author's book is the reproduction of some of Wood's (and other architects') original designs and contract drawings. Of the latter those of Titan Barrow, a house designed by Wood for Mr. Southwell Piggott in 1748, throw an instructive light on the methods of the day. The plans are in outline, without hatching or tinting of the sectional parts, and on the floor space of each room is written, in not very precise terms, the manner in which it is to be finished. For instance the drawing-room is described thus: "The floor of this room is to be boarded with clean Norway oak, doubled, an architrave chimneypiece in Freestone to be carved, a white and veined marble slab, the room to go up to the Roof and to be coved a third or $\frac{2}{7}$ of its altitude as shall be directed, and a compartment in the ceiling with an enrich'd bed moulding within. A Corinthian entablature round the room fully enriched

in freestone, double architraves round the doors and blank door. Tabernacles round the windows with scrolls, festoons, and rolls. Wainscot Sur Base high and the walls lined above to the Entablature with slit deal. The timbers of the floor to be 6 inches deep and ceiled or otherwise close to prevent air or damp from penetrating into the room."

Equally vague notes for the other parts of the house are given, and if these very sketchy and elastic instructions were all the four contractors (who were under a heavy penalty for not completing by the contract time) had to estimate from, they must have had a very good rule-of-thumb method, and an accurate idea of what their architect expected from them. The whole house cost £752 10s., and Mr. Green says it could not now be built for less than £2,500.

The speculative risk of the large building

schemes seems to have been lessened by arranging as far as possible for the houses to be taken before being started. No doubt if a fair number were thus bought or leased by influential or fashionable people, the remainder were more easily disposed of. A sound plan.

Of Wood's son, contemporaries, successors, and their work in carrying on the development of Bath, Mr. Green has much that is interesting to tell us. Indeed the whole story, architectural and social, of this stately little city is a fascinating one.

The book is beautifully printed and got up, but the photographs and their reproduction leave something to be desired. In the measured drawings allowance has not been made for the reduction of the lettering by photography, with the result that much of it is barely legible.

GODFREY PINKERTON.

Notes.

Christopher Kempster—The Ufficio Regionale of Italy—The Architect in Fiction—The Glasgow Royal Infirmary—"Thoughts for the Strong."

WHEN writing in these columns in January 1903 I had occasion to mention Christopher Kempster. He was the "undertaker" of the Market House at Abingdon, a building locally assigned to Inigo Jones for no particular reason except that any building which shows features at all out of the common and which was erected in the seventeenth century is so assigned in most places in England. Hackwood in Hampshire, the Chantry House at Bradford, the old Guildhall at Bath, the Manor House at Widcombe—a hundred more are thus attributed, and the proof in most cases is summed up in the question, "Don't you think it might have been by Inigo Jones?" At Abingdon the answer to such a question may be very brief, namely, "No, it has not the faintest resemblance to his work." Moreover, we know, from the papers preserved by Mr. Arthur Preston and kindly lent to the writer of your article, that the Market House cannot have been even projected till 1677, and that Inigo had died in 1652; that is, quarter of a century before. Two or three other hard facts, as well as two or three matters of opinion, intervene. Apart from the date difficulty—which, by the way, occurs also in the cases, and many like them, mentioned above—there is the fact that no architect is named, unless Christopher Kempster was the architect, and that there is not even mention in any contemporary document or inscription of Webb, Jones's architectural heir, the only Webb

who occurs in the accounts being a timber merchant of that name.

The fact—or perhaps it would be safer to say the opinion of an architectural critic—is and must be that the work not very distantly resembles that of Wren. In other words, there is a possibility, apart from evidence, that the Market House of Abingdon was designed by Wren. But we have the name of the "undertaker," another Christopher, who was apparently as little known to fame at Abingdon in 1677 as he was in 1903; for his surname, when it first occurs in the accounts, is spelled "Kemser," though we know from subsequent entries that it was "Kempster." Was Kempster a builder only, or was he an architect? Was he, in short, capable of designing such a building as the Market House at Abingdon?

Among the few facts regarding Kempster that seem well established one is briefly that he was an inhabitant, if not a native, of Burford in Oxfordshire. Of necessity therefore—I need only refer to Mr. Guy Dawber's account of Burford in last July's number of this Review—he had opportunities of making himself acquainted with architecture such as was in vogue in the reigns of the two first Stuarts; moreover, he was owner, or part owner, of a quarry at Burford. A vein of oolite, now it is said worked out, bore the suggestive name of St. Kitt's. Some of it was used at St. Paul's and in other London buildings after the Great Fire of 1666. There are many entries

in the Abingdon accounts for stones—small sums for the most part, such as £5, £20, £17 11s., and so on to different workmen. These I take to be for “stones used about the cellars” and the like, but not the fine ashlar blocks used in facing the building and in carving the architectural features. They, no doubt, would come under the much larger sums paid to Kempster, which presumably would include materials sent from the Burford quarry. Kempster was employed at Abingdon from January 1677 to January 1682, when we have this entry: “To Christopher Kempster, in full, for all his work done at the Market House, £345 10s.”

I have found two more entries respecting Kempster. In speaking of the building of that lovely church, St. Stephen's, Walbrook, Elmes says: “The subordinate part of builder of this church was faithfully and well performed by Thomas Stone, son of Valentine Stone . . . in this business Thomas took Mr. Christopher Kempster as his assistant” (Elmes, p. 315). The second is his epitaph, which occurs on a monument in Burford Church, and which fixes the date of his death in 1709.

A full copy of this epitaph and a reference to the passage in “*Parentalia*,” which corresponds with the above quotation from Elmes's “*Life of Wren*,” would probably go to show whether or not I am justified in supposing that Kempster was one of the numerous clerks of the works employed, with the six Strongs, at St. Paul's and elsewhere in London during the rebuilding; that he was particularly in charge of what must have been Sir Christopher's most important minor piece of work; that as St. Stephen's was begun in 1672 he was busy there till its opening in 1679, two years after the work at Abingdon was begun, and that, after St. Stephen's was finished, Kempster, coming fresh, so to speak, from Wren's most intimate working-room, was able to devote his attention to the Market House for the next four years and to make it what it is.

Perhaps some of your readers will be so good as to supplement this note with (1) a copy of Kempster's epitaph; (2) the passage in “*Parentalia*” mentioned above; (3) any local notes about Kempster which may still linger at Burford, whether the quarry “St. Kitt's” may still be identified, and whether it is the case that a particular pattern of tombstone is known by his name in that somewhat out-of-the-way part of Oxfordshire.

If Kempster's name can be restored to the list of English seventeenth-century architects it may be that a diligent search will reveal other works of the same hand.

W. J. LOFTIE.

THE misfortune which has befallen Venice in the loss of her chief architectural feature and landmark excited world-wide sympathy, and not a little critical interest in the Government administration of the innumerable artistic heirlooms which modern Italy has inherited from her wonderful historic past. The modern Government of a united Italy, in taking possession of all the public monuments and abolishing the laws of mortmain in 1870, assumed responsibilities which were hardly appreciated at that time in their full force. The innumerable churches and other buildings containing precious works of art have now to be maintained at the expense of the State; but the funds at one time available for the purpose have naturally become attenuated under the circumstances, and the upkeep of these monuments has to be provided for by other and more modern means. There is now some little difficulty on the part of the Ministry of Public Instruction to supply the funds so urgently needed in all parts of the peninsula for this purpose in cases where in former days the money would have been forthcoming from the incomes of civil or ecclesiastical corporations. But as a matter affecting the interests of art and the preservation of art treasures there can be no doubt that the Italian “*Ufficio Regionale per gli monumenti*” is a most admirable institution, and the best method of meeting the difficulty. It is a popular system, and where it can be kept free from that bane of Italy—politics—it seems to work admirably. It also increases the popular appreciation for historic art and archæology and is an important educational factor.

In each of the provincial capitals—such as Venice, Milan, Turin, Florence, Bologna—a permanent technical office, under a properly qualified architect, is now established. The duty of the architect and his assistants or inspectors is to supervise the work of the Department in the different provincial districts. In each of these districts is a local committee composed of the gentlemen of the locality whose interest and qualifications in art and archæology have led to their election for the purpose. These gentlemen at their meetings receive reports from local sources, and study the fate of ancient edifices and works of art in public or private ownership within the district. The labours of these local committees are assisted by reference to the central provincial commission instituted for that purpose in each provincial capital, which possesses sufficient power to enforce the observance of the decisions of the local committee. The whole system depends upon the Ministry of Public Instruction, and its professional advisers and officials, acting as an ultimate court of appeal.

The Public Works Department of Italy is no

longer the guardian of the national art monuments, a reform which the artistic importance and circumstances of the country imperatively demanded. Art and architecture are no longer classed with merely utilitarian or sanitary engineering, or the construction and maintenance of roads and bridges. It is at length felt that the great churches and other monuments of antiquity, which may require an attention involving the profoundest knowledge of scientific building construction, cannot be any longer left to the tender mercies of the military engineers, or to the spontaneous developments of local genius. With the new century an apparently admirable system for preserving the historic memorials of the country has been inaugurated, and one which meets with a popular approval in spite of appearing somewhat to infringe on the rights of property in a manner which would perhaps be thought intolerable in any other country. This latter circumstance may be partly due in the case of Venice to a generally expressed feeling, which has been gaining ground of late years, that as the palaces and monuments of the famous old Republican patricians are no longer owned by their descendants, the State has a certain right to act as guardian in the interests of the educated world at large. In other places the rights of private ownership would perhaps be supported with greater energy, and certainly the maintenance of the old private chapels of the churches would be a privilege insisted upon by the living representatives of their founders.

This sketch of the new Italian Government department intended to preserve the national monuments, and the circumstances under which it has been formed, naturally leads to some comparisons between modern Italy and other countries where such an institution is unknown. In France, about the middle of the nineteenth century, a Government administration of national buildings, such as the Gothic cathedrals, was formed under the guidance of Viollet le Duc, and many of these great buildings were "restored" in his very drastic manner. But the French system is not so comprehensive as the Italian, and the popular and localised element is absent; it is merely a branch of P. W. D. and centralised in Paris. The restored cathedrals of the days of Viollet le Duc are unsatisfactory from every point of view; even the restored town of Carcassone, which is intended to be in a more conservative style, is almost as much *overdone* as all the other French work of the kind.

In England and the more northern countries of Europe popular opinion has never yet insisted on a Government supervision and control of national monuments, from a conservative point of view,

although as strong and sufficient reasons might be urged as in Italy. In England a certain popular sentiment is represented by a society for protecting ancient buildings; but as this society has no Government status or recognition, its protests against modern vandalism are to a great extent ineffectual, and its influence on the general public is practically nil. England has still immense quantities of art and archæological treasures surviving the destructions and restorations of the nineteenth century; and although a copy of the Italian "Ufficio" would not suit the case, perhaps, still some regular recognition by the Government of the importance of protecting our old historical objects of interest seems desirable, although it would have been of greater use fifty years ago. When one remembers the destroyed village churches, the swept and garnished cathedrals, the innumerable works of a local art cleared away in obedience to the theories of cranky art-critics or the sectarian prejudices of irresponsible officials, one's regret for the past freedom from all recognised control in such matters must be indeed deep and strong. In Italy the "Ufficio Regionale" admits no vexatious questions as to the comparative value of monuments or works of art; all are alike interesting and making for history. Under the tutelage of such an organisation nothing can take place resembling the vandalism of twenty-five years ago in England, when "Perpendicular" work was destroyed at Norwich Cathedral for the purpose of "restoring" sham "Norman," or, in a later instance, the interesting architecture of Wren was to have given place to sham "Gothic" at Lincoln. Such an institution as the "Ufficio" would not of course protest against sanitary alterations in ancient churches; but it would insist upon the ancient gravestones and monuments being replaced or taken care of under such circumstances.

Much vandalism did take place in Italy also during the past quarter century in such cities as Rome and Florence; but neither to the same extent nor for the same reasons as in England—indeed the two cases can hardly be at all compared. In Italy the rebuildings and ridiculous "Gothic" restorations of ancient monuments are so rare as to be quite remarkable. But a vast amount of ancient art has disappeared in the more natural way of decay and gradual replacement, without any attempt to represent what may have once occupied the same position. For instance, Florence has lost many curious little churches and the halls of the "Arti" or civic guilds, which were swept away at the "sventramento" of 1890. Rome lost a great many mediæval and some classic remains during the nineteenth century, and the less important cities have suffered in their

degree like Milan, which lost many old churches, palaces, and other buildings in 1860. But Italy was never subjected to the wave of destructive art criticism which at one time visited England and induced the occupiers of many more or less public buildings to "restore" them in what was supposed to be the more correct and purer style of some earlier period. In Italy the lamentable destructions in the "sventrati" centres of the old cities have been caused by a necessity for improvements and a changed mode of life; no pseudo-classic church has ever been pulled down for the purpose of erecting a modern "Gothic" one in its place; and although Rome has been overbuilt with hideous blocks of lodging-houses, there are fortunately very few instances of cockney suburbs replacing the characteristic old villas and their gardens surrounding provincial towns.

Italy has been very fortunate during the past century; its monumental and historic art has been singularly well preserved as compared with other countries, and in no city of the peninsula can this be better seen than in Venice. The new "Ufficio Regionale," an organisation of the very highest value for all parts of Italy, is of particular advantage to Venice, where, without such an institution, the unclaimed monuments might have fallen a prey to the caprices of their irresponsible official or private owners. The copy of such a system in the interests of art and archæology might not be applicable to other countries; but certainly the generally satisfactory results already obtained are greatly to be desired wherever historic monuments still exist in an unrestored state.

* * * * *

IN the JUNE ARCHITECTURAL REVIEW attention is called to the fact that "contemporary fiction has luckily left the architect almost alone." Perhaps it may not be inopportune to recall to your readers a recent novel entitled "The Nebuly Coat,"¹ which is chiefly concerned with the experiences of a somewhat ordinary architect's assistant, a character faithfully portrayed by an author who evidently knows something of the profession and its ways. The "hero," a young man called Westray, is sent down by a very probable "Sir George" (a great cathedral restorer, of whom one has little difficulty in finding an actual prototype) as his representative to superintend the restoration of a fine old church in a sleepy and decaying little town. The description of the great pile in the middle of a formerly busy market place, surrounded by picturesque and respectable old houses, will remind every reader of some place he has met with in his travels: perhaps Shoreham in Sussex, or some of the old East Coast towns, best answer to this tale of

departed prosperity. Within the church, and affected by the restoration, is the feature which gives so strange a title to the book, a window bearing in its magnificent stained glass the heraldic device of the Nebuly Coat, the arms of the lords of the place; a coat which has been besmirched by the recent history of the family. The last scion of this house has lived all his life abroad, and when he returns to his native town in early middle-age he finds himself unknown, and with a family history that sadly needs the blots erasing from its pages. Here then comes our architect, and here he pitches his tent in rooms belonging to a lady in "reduced circumstances," but possessed of a niece whom the author wishes us apparently to consider captivating. Besides these characters, there are two more principals: a possibly exaggerated parson of the most fussy and subservient type imaginable, cringing to Sir George, overbearing to his menials; and lastly the old organist of the church, a weird and mournful man, mysterious and uncanny in his history. His gruesome death at the keyboard is the most tragic part of the book, as the final disaster in the last chapter, fulfilling Westray's predictions, is the most thrilling.

It is certainly a story out of the common, and worth reading for this, though it may be thought heavy in some parts. But it is with the personality of this hypothetical architect that we are mainly concerned, and as a character-study it will probably be voted a success by members of the profession. His enthusiasm for his work is a frequent characteristic of his calling, and the lurid way in which he is depicted as working far into the night at his drawing-board will appeal to anyone who has tasted the sweets of life in "diggings." Another amusing touch is the description of his discussion with his landlady as to the removal of certain of the ornaments in his sitting-room, culminating in a heated argument as to the merits of a very aggressive painting of flowers. This picture plays an important part subsequently in the plot of the novel. Whether the author is true to life in representing him as a somewhat anæmic youth, rather limp from overwork and too much midnight-oil, and apparently free from any desire for holidays or recreation, is a point which readers will settle according to their own experience.

One thing is certain: this is just the book to give to any irresponsible youth of amatory inclinations about to enter the spellbound atmosphere of "diggings" with an attendant fairy such as the so-called heroine of the book. For surely never was there any such insipid and flaccid love-making as our architect is represented as carrying on, and

¹ "The Nebuly Coat" (by J. M. Falkner).

when the fascinating stranger with the blue blood and the black whiskers steps in, while Westray is far away up a ladder measuring mouldings, our sympathies are not, it is to be feared, with our brother architect, but rather with the gallant peer. For the honour of the profession it must be urged that such half-hearted and lukewarm methods are not always the rule, and that though we are content to welcome Westray to our ranks as a deserving youth who may eventually win the "Soane" if he goes on trying, we hope that he will also eventually become a more interesting person socially than he appears to be in "The Nebuly Coat."

M. S. BRIGGS.

* * * *

THE Glasgow Royal Infirmary competition has been one of the most unsatisfactory which has been held in recent years. To begin with, it is now pretty generally admitted that there should have been no competition for an infirmary on this site, which is practically in the centre of a city having a population of nearly one million. The majority of the medical profession admit that long before this building could be completed and occupied the scheme would be recognised as a hopelessly retrograde proceeding, perpetuating indefinitely a grave and costly blunder. As Dr. James Finlayson, chairman of the house committee of the infirmary, says: "That 660 sick persons should be piled up in six flats, with a dense population of the living on one hand and of the dead on the other, and with chemical and other works in the near vicinity, is a plan against which, as a physician, I must protest." The Manchester Infirmary has been frequently instanced as a precedent, but we now know that the common-sense of the citizens of Manchester has triumphed over the enthusiasm of those wedded to plans of tall buildings similar to the one adopted by the Jubilee "executive" in Glasgow.

The Jubilee Memorial block is the one which faces Cathedral Square. For it £90,000 has been received, but in order to complete the scheme a further £170,000 will be required to carry out these "discredited plans," and this money is about to be appealed for.

Readers of this journal will remember how the award of the assessor of the competition, Sir Rowand Anderson, was set aside, and how the committee, for no apparent reason, accepted the plans of another architect not in the premiated list.

But in addition to the plea of a number that the present infirmary ought merely to be put in a

state of thorough efficiency as an emergency hospital, and that a new building ought to be erected outside the city, there are the architectural objections to which the Glasgow Institute of Architects, the Art Club, and the Archæological Society have drawn attention, namely, that the work of Robert Adam will be destroyed, and that in its place will be erected an immense block, which, being taller and standing on higher ground than the cathedral, will greatly injure the appearance of this very fine mediæval building.

* * * *

THE Correspondent to whom I am indebted for a former frank expression in the Whitman manner of his thoughts on latter-day architecture, now continues to lash the generation with the following lines:—

THOUGHTS FOR THE STRONG.

Why should we architects live in such perpetual rebellion with the present?

We talk about picking up the thread of architectural tradition where it was broken. Is it not really an excuse to go back a couple of hundred years or so, that we may get away from the needs and conditions and stern realities of modern life?

We cannot so quietly leave out centuries of history, nor is the thread of national tradition so easily broke; history will see to that.

The scientists have been truer to their generation.

The impressive dignity, the beauty, the perfect fitness, and the style of a modern express locomotive is incomparably finer than the best work of the best architect of to-day.

If we could only build with the same fitness, the same science, the same *unchallenged acceptance of modern material and modern conditions*, and the same sincerity; if we could only think of our building as an entirely modern problem without precedent (and it is an entirely modern problem without precedent), just as the railway engine is; then, without a doubt, the same beauty, the same serene dignity would inevitably accompany our efforts, and the ruins of the past might crumble to dust, but the architectural tradition would remain with us still.

We must begin at the foundation and not at the cornice. We must put aboriginal constructive force into our work, and leave it to speak for itself: no mere ingenuity will suffice; tricky combinations of style and smart inventions are fool's play.

* * * *

In the skeleton of the Tower Bridge we have a structure rational, scientific, acceptable in design and modern to the core, the modernity of which the architect has spent so much energy in obliterating by covering the real piers with a thin skin of Engineers' Gothic.

It makes little difference whether the style be Engineers' Gothic, or Institute Classic, or something perhaps more spirited or vigorous than either of these, the truth remains that applied "Architecture" is unapplied architecture!

The same argument applies to our modern buildings, and all such work as may be called "Architects' Architecture." The grave yawns for "Architects' Architecture." The same problem has to be solved, and is solved in a measure, in our mills, our warehouses, our back elevations (they are not so godless as we thought them). The demands of our tasteless clients for plate-glass fronts and the like are rational enough; but we, schooled from our apprenticeship in traditions and unreality, rebel against any problem which cannot be solved by traditional methods.

We are ashamed of our nakedness—and yet it is in the frank confession of our nakedness that our regeneration lies.

In conclusion, let it be said that only the aboriginal force in any building can be called architecture, and to introduce any form that is not contemporary, is to hinder progress and the true expression of the modern in architecture.

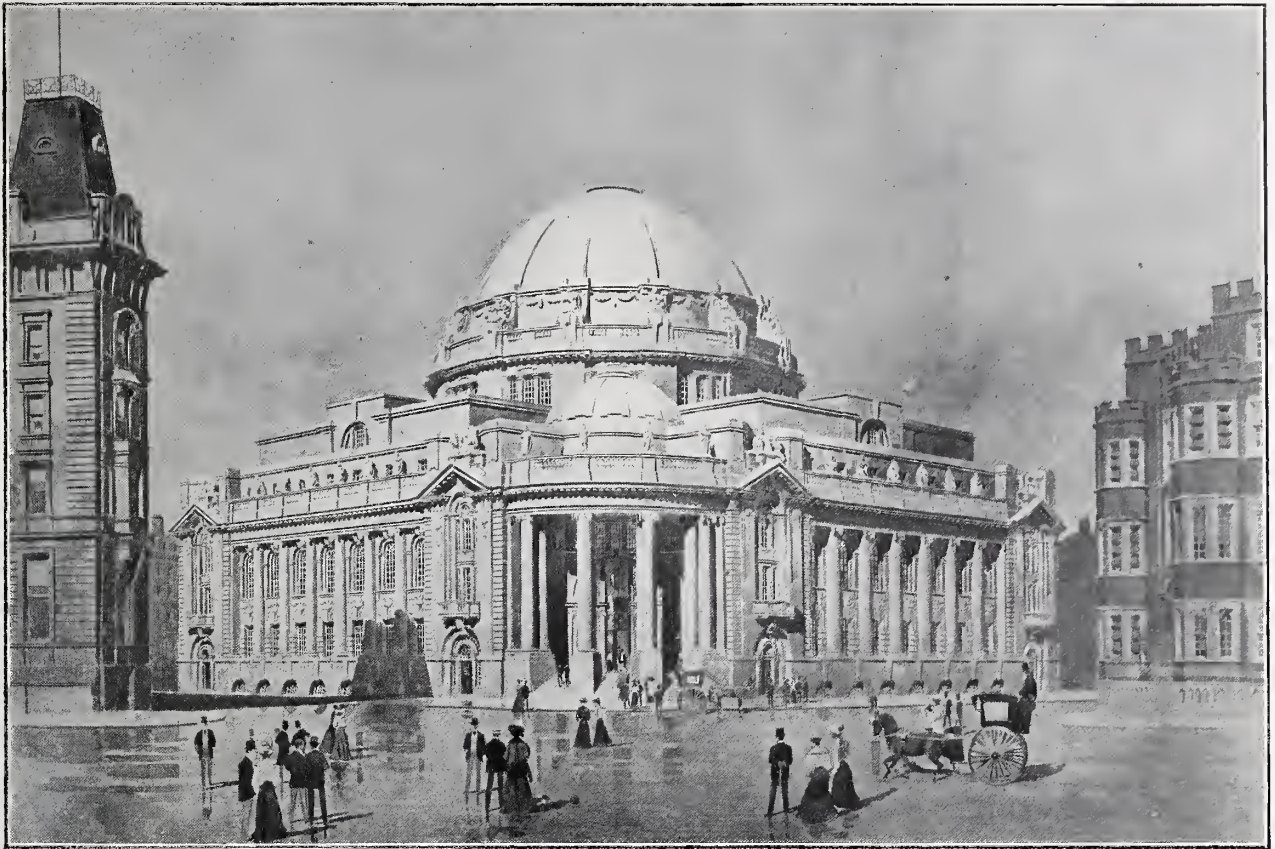
Competitions.

THE WESLEYAN METHODIST CHURCH HOUSE, WESTMINSTER.—The trustees of the new Wesleyan Methodist Church House at Westminster, having selected nine designs from the 132 originally submitted by architects, have, acting upon the advice of Sir Aston Webb, their professional assessor, finally accepted the design of Messrs. Lanchester and Rickards, of London. It is thought that the cost of the building (which has a large dome and will be loftier than either the Westminster Hospital or the Westminster Palace Hotel) will amount to £140,000. The style of architecture chosen is the Renaissance. In working out the design its proportions and massing have been allowed to develop from the necessities of the case, the form of the large hall being naturally the dominating influence, while the expressed desire for a building of monumental character has been an important factor in determining the treatment

of the detail. Applied ornament and sculpture have been sparingly used, and figure-work has been almost wholly avoided, as unsuited to the purposes of the building. In the basement there will be a tea-room to seat 550, and another to seat 450. The mezzanine at ground level will comprise thirteen offices, two strong-rooms, and a lavatory. The ground floor will comprise a conference hall to seat 300, reading-room, library, small hall, four committee-rooms, librarian's room, vestry, and two lavatories. The mezzanine above the ground floor will contain twelve offices and two lavatories. On the first floor will be the assembly hall, seating 1,401 on the floor, cloak-rooms and lavatories, two vestries, a reception-room, and eleven offices: on the second floor, galleries accommodating 1,155, making a total seating accommodation for the assembly hall of over 2,500. The librarian's house will be on the third and fourth floors.



ACCEPTED DESIGN BY LANCHESTER AND RICKARDS.
(For Plans and Sections see pp. 30, 31.)

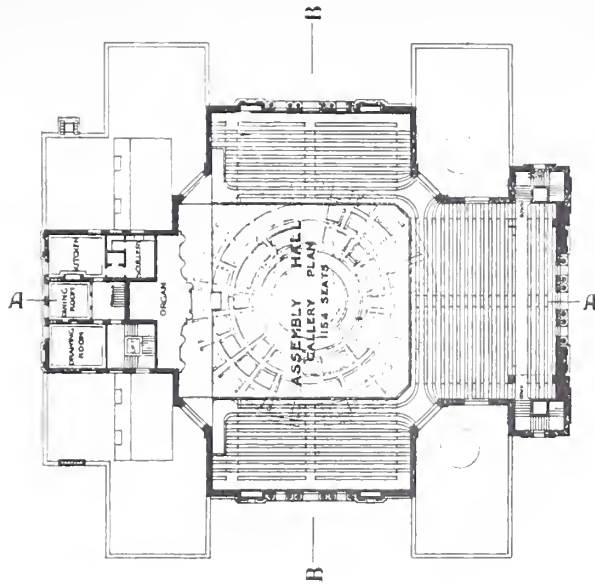


Design submitted by Crouch, Butler, and Savage.

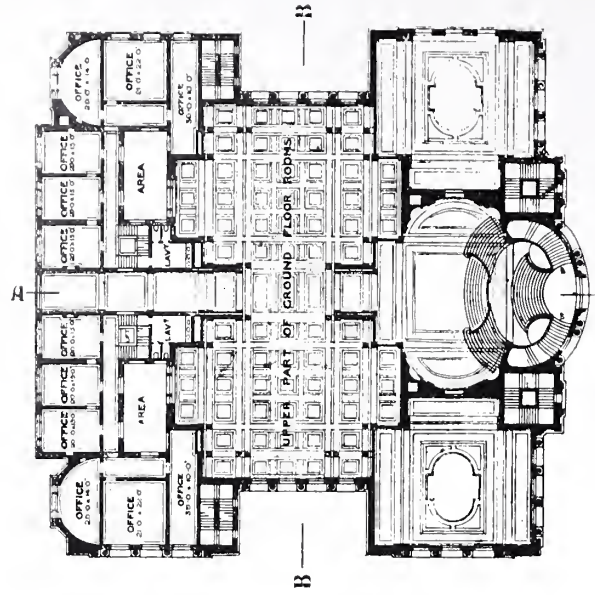


Design submitted by C. E. Mallows and A. W. S. Cross.

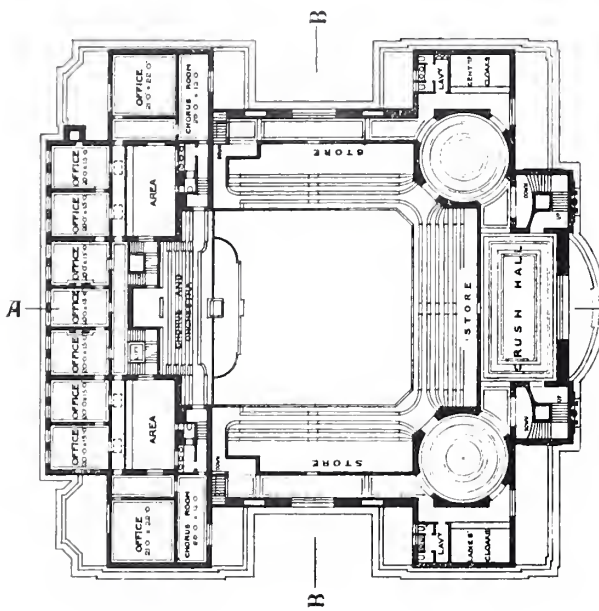
THE WESLEYAN METHODIST HALL COMPETITION.



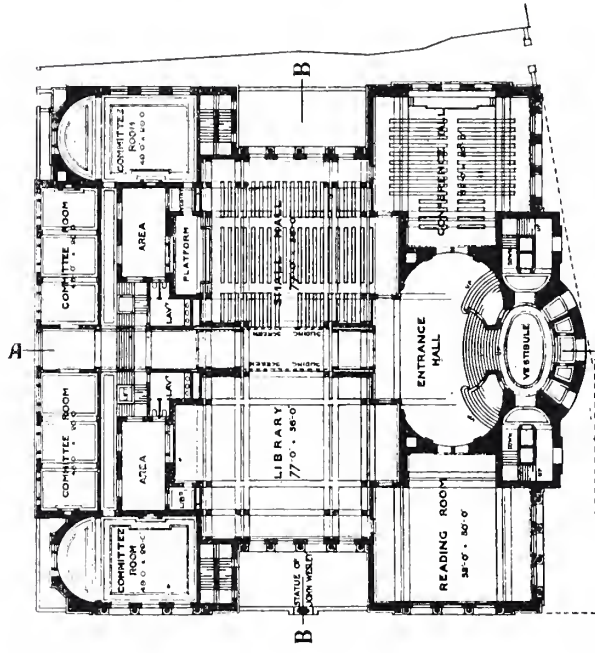
THIRD FLOOR PLAN



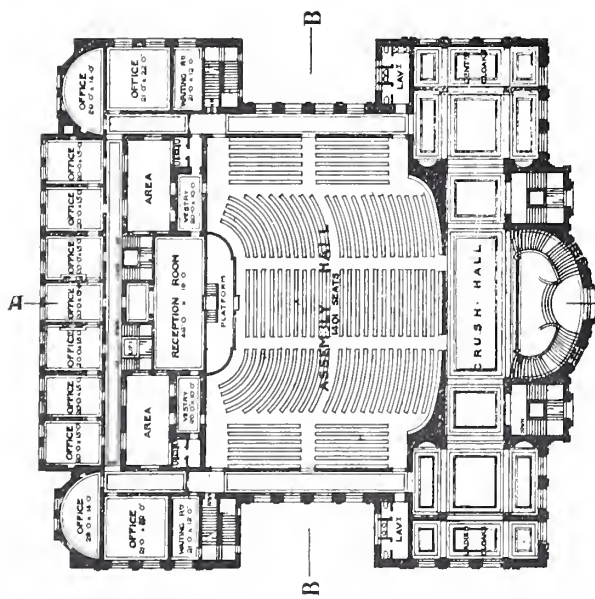
MEZZANINE ABOVE GROUND FLOOR



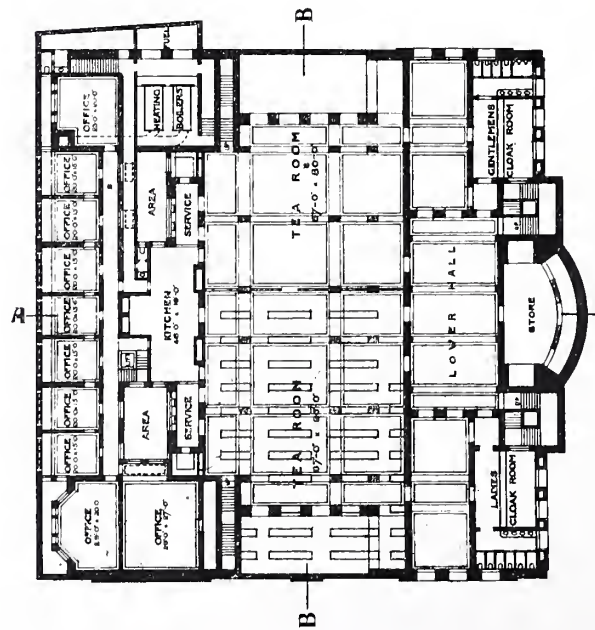
SECOND FLOOR PLAN



GROUND PLAN

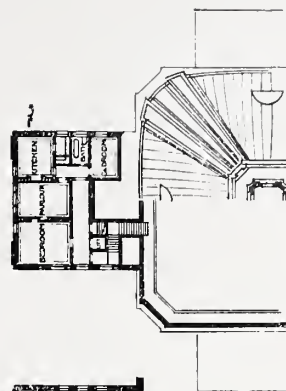
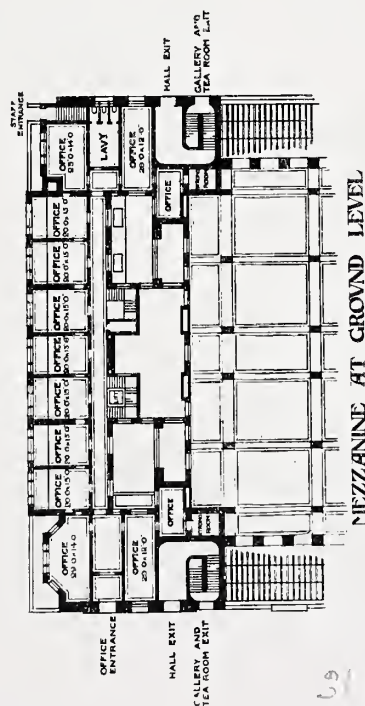
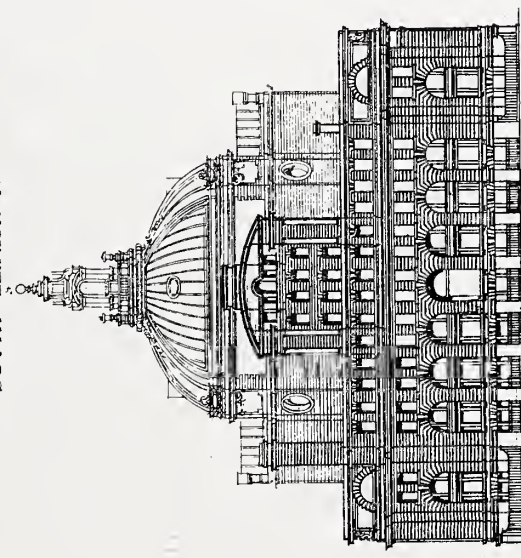
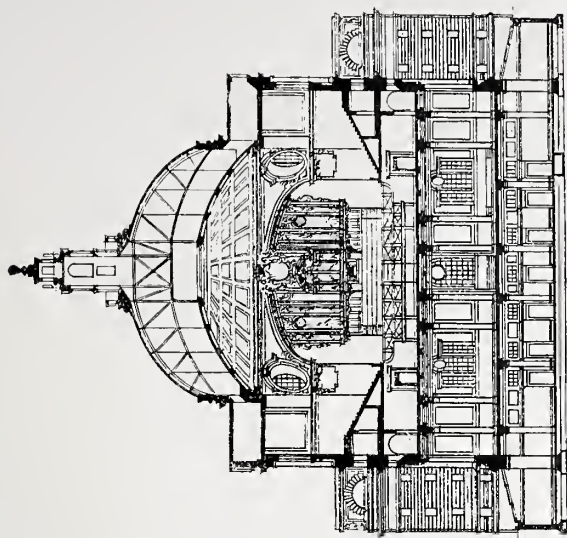
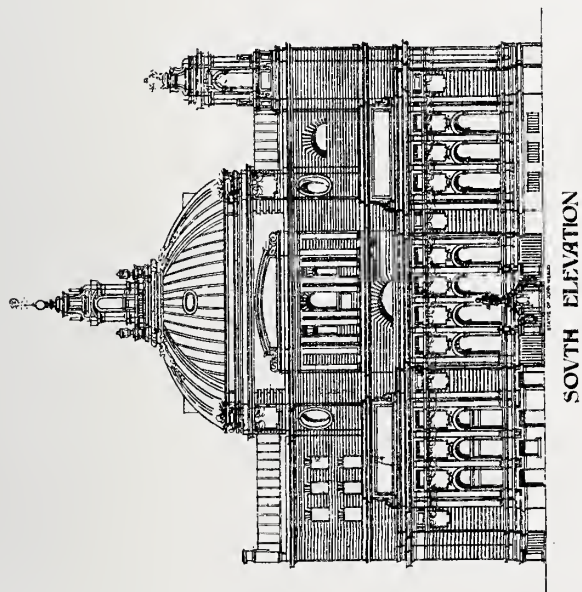
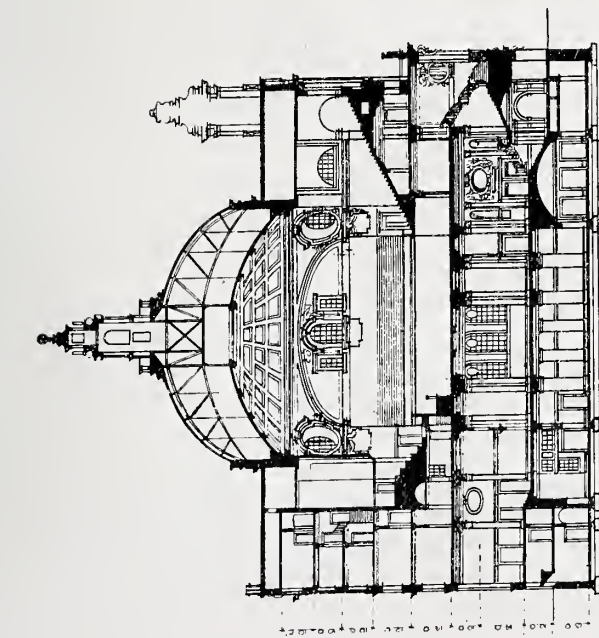


FIRST FLOOR PLAN



BASEMENT PLAN

WESLEYAN METHODIST HALL AND CONNEXIONAL OFFICES, WESTMINSTER, ACCEPTED DESIGN BY LANCHESTER AND RICKARDS.

FOURTH FLOOR
LIBRARIANS HOUSE

FIFTH FLOOR
CARETAKER

WEST ELEVATION

WESLEYAN METHODIST HALL AND CONNEXIONAL OFFICES, WESTMINSTER. ACCEPTED DESIGN BY LANCHESTER AND RICKARDS.

Current Architecture.

NEW HOUSES OF PARLIAMENT, STOCKHOLM.

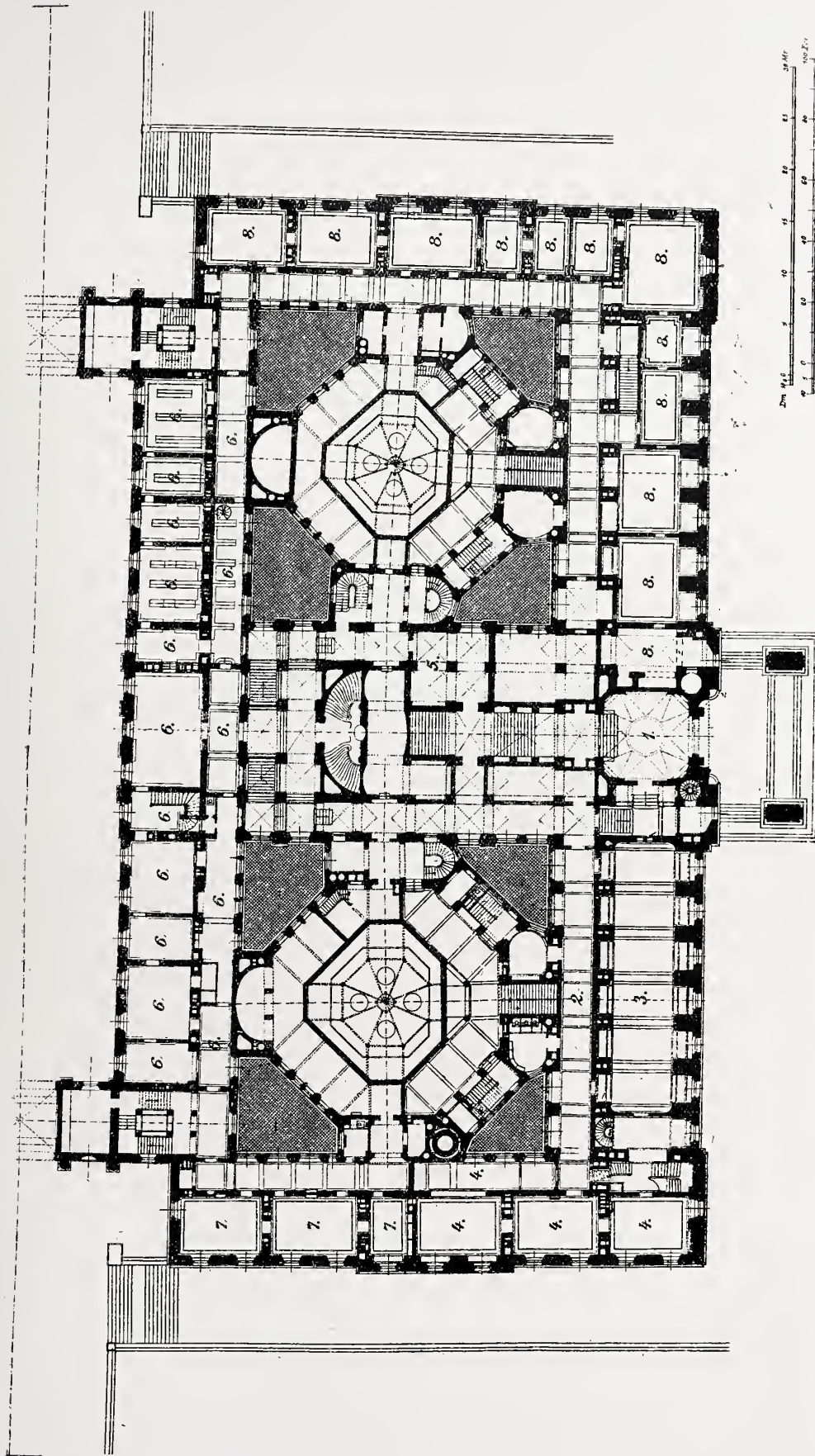
—There are few more picturesque cities in Europe than the capital of Sweden, with its varied elevations and its abundance of water, but these favourable natural conditions have not always been exploited or considered in the happiest manner in the placing and designing of new buildings. Opinions were very much divided when the Helgeandsholmen, a small islet to the right of the Norrbro when one faces the castle, was finally selected as the site of the new Houses of Parliament, and the choice gave rise to a heated and protracted discussion. The Stockholmers were afraid that the new Houses would detract from the grandeur and dignity of the castle and, worse still, interfere with the freedom of the

view up and down the stream in the midst of which it now rises. On the other hand one cannot wonder at the legislators giving preference to this position, which, from their point of view, is simply perfect. Mr. Aron Johansson, the architect, had a difficult task set him. The foundation stone was laid with much solemnity on May 13, 1897, and the building was ready for the 1905 Riksdag on its assembling in January. At the back the building has, by means of arches, been connected with the new building of the National Bank of Sweden, the two buildings supplementing each other architecturally so as to constitute an excellent whole. The material used for the outer surface is granite, which imbues the structure with a restful strength and which lends



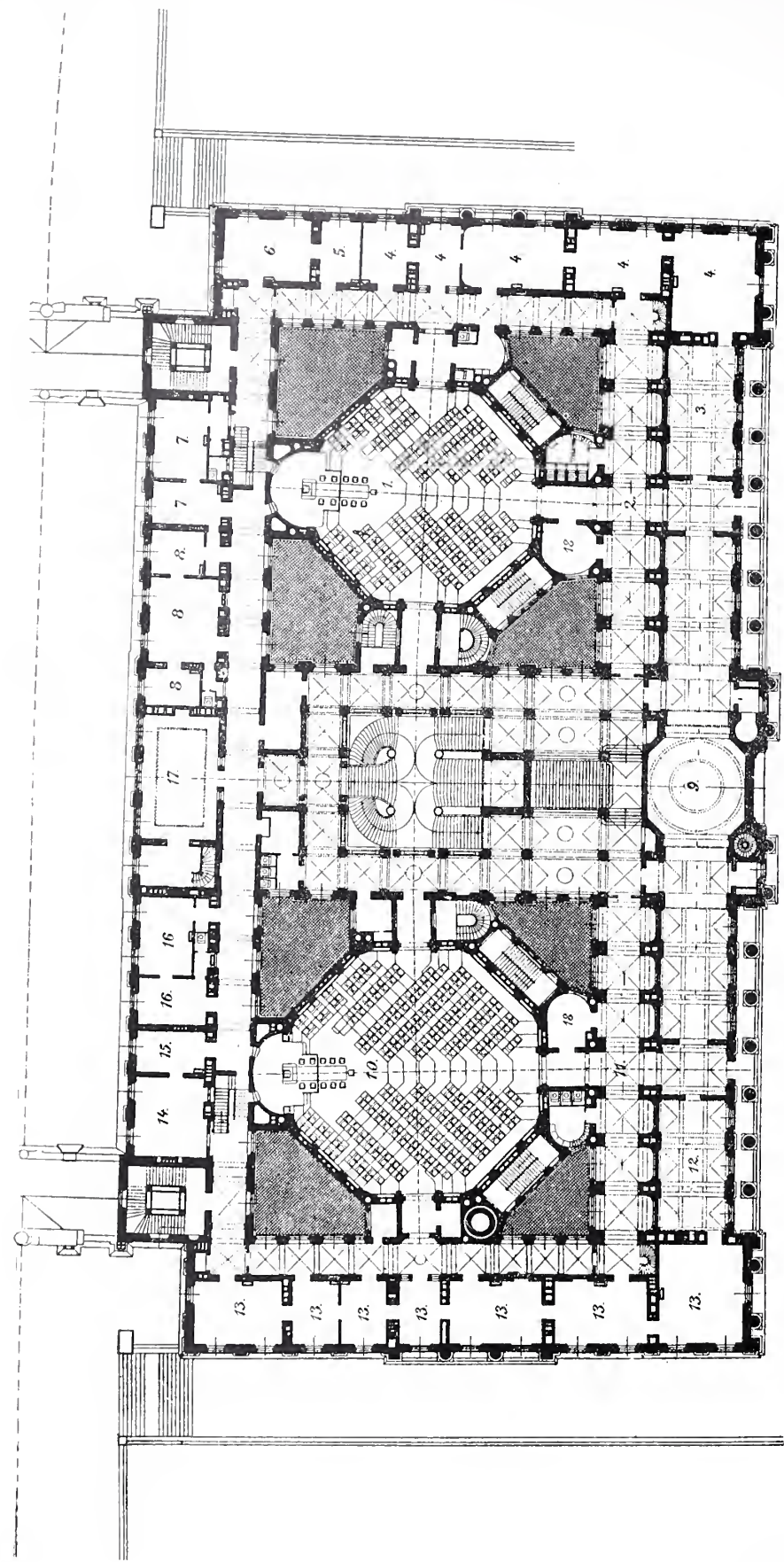
THE NEW HOUSES OF PARLIAMENT, STOCKHOLM.

A. JOHANSSON, ARCHITECT.



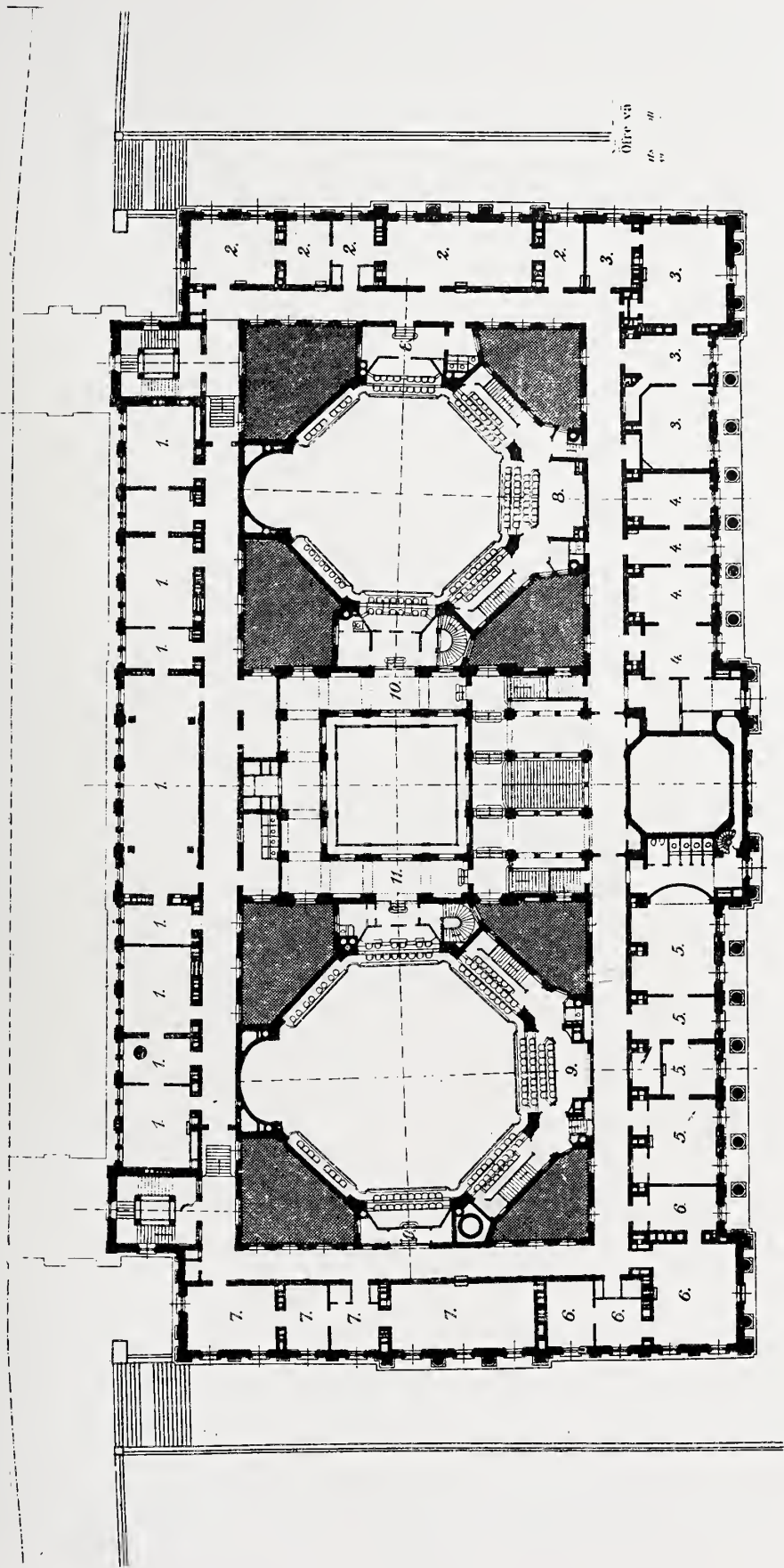
THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. GROUND FLOOR PLAN. A. JOHANSSON, ARCHITECT.

References:—1. Vestibule. 2. Cloakroom Corridor. 3. Dining Room. 4. Coffee and Smoking Rooms. 5. Telegraph. 6. Library and Reading Rooms. 7. Principal Councillor of State (Prime Minister). 8. Treasury Department.



THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. PRINCIPAL FLOOR PLAN. A. JOHANSSON, ARCHITECT.

References:—1. First Chamber. 2. Cloakroom Corridor. 3. Refreshment Room. 4. Club Rooms. 5. Secretary. 6. Secretary's Clerks. 7. The Speaker (First Chamber). 8. Council of State. 9. General Meeting Hall. 10. Second Chamber. 11. Cloakroom Corridor. 12. Refreshment Room. 13. Club Rooms. 14. Secretary's Clerk. 15. Secretary. 16. The Speaker (Second Chamber). 17. Great Library. 18. Telephones.



THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. UPPER FLOOR PLAN. A. JOHANSSON, ARCHITECT.
*References:—*1. The State Committee. 2. Grants in Aid Committee. 3. Finance Committee. 4. Occasional or Spare Rooms. 5. Finance Committee.
6. Law Committee. 7. Constitution Committee. 8. First Chamber Gallery. 9. Second Chamber Gallery. 10, 11. Reporters' Galleries.



THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. THE GRAND STAIRCASE.
A. JOHANSSON, ARCHITECT.



THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. THE GRAND STAIR CASE.
A. JOHANSSON ARCHITECT.

*Detail of Main Entrance.**Interior of the First Chamber. (Note.—The Second Chamber is exactly similar.)*

THE NEW HOUSES OF PARLIAMENT, STOCKHOLM. A. JOHANSSON, ARCHITECT.



THE NEW HOUSES OF PARLIAMENT, STOCKHOLM.
 ARCHES CONNECTING WITH THE NATIONAL BANK OF SWEDEN.
 A. JOHANSSON, ARCHITECT.

itself equally well to the mere mural motifs of decoration and to the large coats of arms over the main entrance, as well as to the four large figures, representing the four classes or "Ständer" of the kingdom, and the still larger figure of Svea (Sweden), which forms the consummation of the central portion. Pillars and pilasters have been used with considerable effect; exception might perhaps be taken to the grooving between the stone blocks of the ground storey being somewhat exaggerated—a failing very common in Germany, the town hall of Hamburg being a flagrant

example. The illustrations are, however, sufficiently clear to make any detailed description unnecessary. The interior may, in a way, be said to form a contrast to the outer treatment of the building, inasmuch as plaster and paint have been resorted to in lieu of marble or stone. Light colours predominate on the ground staircase and in most of the rooms and corridors, and the impression received is perhaps not quite that one expects in the palace of a country's legislature. The arrangements, however, are practical throughout, and many details have been most carefully



Photo: Bedford Lemere and Co.

WAREHOUSE—21, LITTLE PORTLAND STREET, W.
BERESFORD PITT, ARCHITECT.



Photo: Bedford Lemere and Co.

AMES HOUSE—ANGLE OF GREAT AND LITTLE TITCHFIELD STREETS.
BERESFORD PITE, ARCHITECT.

*Photo: Bedford Lemere and Co.*

AMES HOUSE, MORTIMER STREET, W., FROM ANGLE OF GREAT TITCHFIELD STREET.
BERESFORD PITE, ARCHITECT.

considered. The halls for the two Chambers are octagonal, panelled (with beech wood), and awaiting some final artistic decoration. Both these halls have top lights, an arrangement which, however practical, does not always tend to enhance the architectural beauty of a hall. The dimensions are: length 105 metre (350 ft.), breadth 57 metre (190 ft.), and height from the pavement to the upper line of roof 21.5 metre (72 ft.).

AMES HOUSE, MORTIMER STREET, W.—This is a residence and restaurant in connection

with the Young Women's Christian Association, and is wholly the gift of Alfred Ames, Esq. Messrs. Lindsay Neal & Co. supplied the steel-work; Messrs. Benham & Sons, Ltd., the cooking apparatus; and the general contractor was Mr. A. A. Webber. Professor Beresford Pite is the architect.

WAREHOUSE, 21, LITTLE PORTLAND STREET, W.—This building, from the designs of Professor Beresford Pite, was also erected by



Photo: Bedford Lemere and Co.

AMES HOUSE, MORTIMER STREET, W. ENTRANCE.
BERESFORD PITE, ARCHITECT.

Mr. A. A. Webber, Messrs. A. D. Dawnay & Sons supplying the ironwork.

REGISTRY OFFICES FOR THE UNIVERSITY OF WALES, CATHAYS PARK, CARDIFF.—This building forms the offices for the Registrar of the University of Wales and his clerical staff, the offices being on the ground floor, packing and unpacking rooms, strong and storage rooms on the basement, and further store rooms on the first floor,

together with accommodation for the resident caretaker. The building is of fireproof construction throughout, and faced with Portland stone. The iron posts in front of the forecourt are surmounted by a representation of the Welsh dragon cast from models made by Goscombe John, A.R.A. The carving of capitals and escutcheons has been carried out by George Haughton, of Swansea. The contractors for the work were Messrs. James Allan & Sons, Cathays, Cardiff, and the architects Messrs. Wills and Anderson, of 4, Adam Street, Adelphi, London.



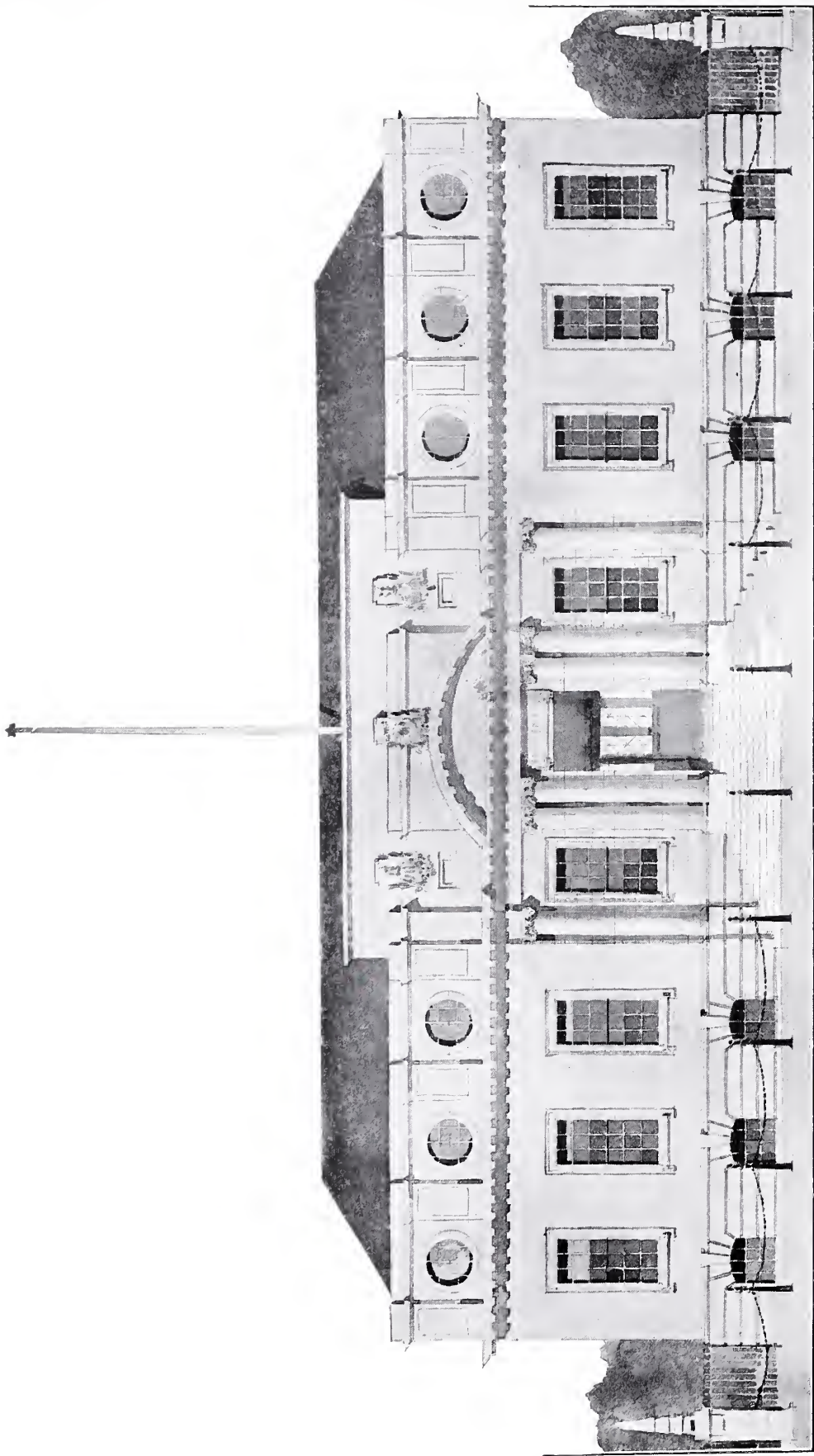
Photo: J. O. Long

THE REGISTRY BUILDING, CARDIFF UNIVERSITY. WILLS AND ANDERSON, ARCHITECTS.

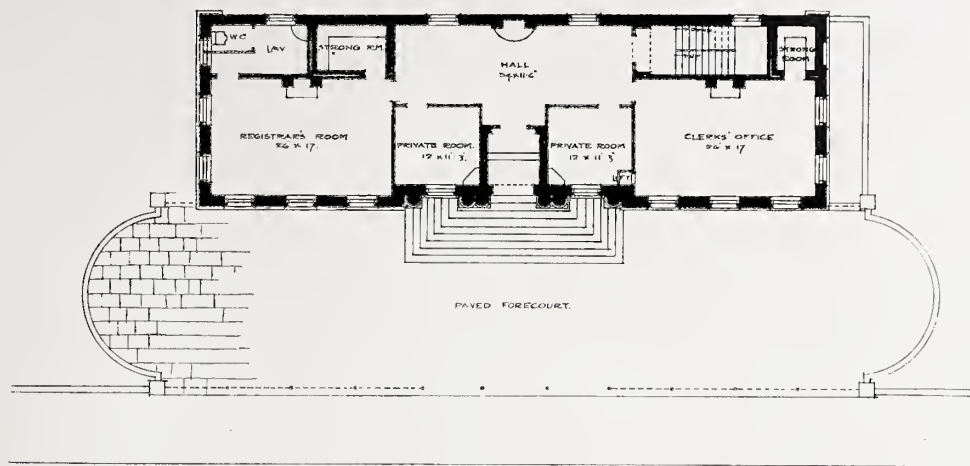


Photo: J. O. Long.

THE REGISTRY BUILDING, CARDIFF UNIVERSITY. WILLS AND ANDERSON, ARCHITECTS.



THE REGISTRY BUILDING, CARDIFF UNIVERSITY.
WILLS AND ANDERSON, ARCHITECTS.
Scale elevation: 12 feet to one inch.



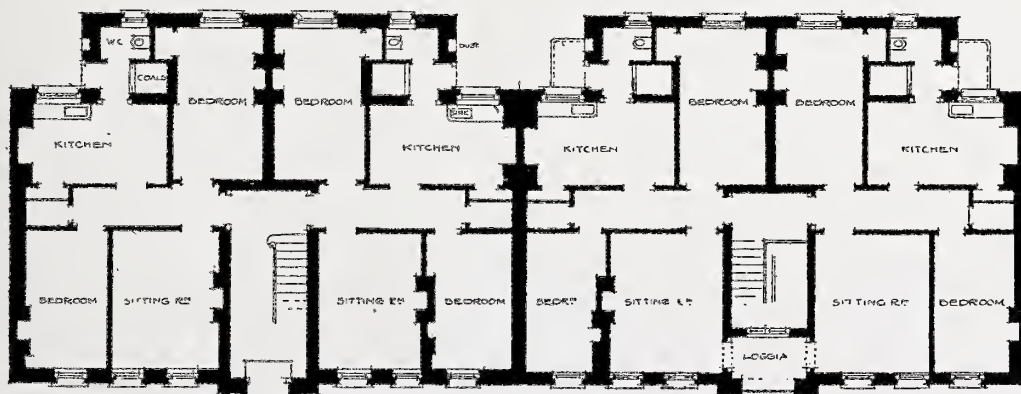
CENTRAL AVENUE CATHAYS PARK

THE REGISTRY BUILDING, CARDIFF UNIVERSITY. GROUND PLAN.

WILLS AND ANDERSON, ARCHITECTS.

"QUEEN ALEXANDRA'S COURT."—This name has been given to the homes for necessitous widows and daughters of officers which are being erected at Wimbledon. The scheme is the outcome of Sir James Gildea's action in starting an officers' branch of the Soldiers' and Sailors' Families Association in 1886, the object of which was to make pecuniary grants to necessitous officers' widows. In 1898 the idea of providing homes for these ladies was conceived by Sir James, and twelve flats on one staircase were rented in Elm Park Mansions; and this proving satisfactory, the site of $3\frac{1}{2}$ acres at Wimbledon was obtained, and building begun. Queen Alexandra subscribed £5,000 from her War Fund to it. The qualifications are that the officer's daughter or widow who occupies one of the flats must be between fifty and eighty years of age, with an income between £40 and £100 a year. They can bring two daughters or nieces or other female

relatives to live with them. They will live free of rent and taxes, the only charge being for gas or electric light. Sixty small flats constitute the available accommodation. There are to be four blocks of buildings, built on three sides of a quadrangle. The two smaller blocks each have twelve self-contained flats, while the others possess fifteen each. Each flat consists of a sitting-room, two bedrooms, and a kitchen. The floors are parquet, walls distempered, and there are good doors, locks, and cupboards, with gas stove for cooking, and grates in all the rooms. The fireproof partitions throughout were constructed on dove-tailed corrugated sheeting by the Fireproof Company, Limited, 7, York Buildings, W.C. Messrs. Ernest George and Yeates, as honorary architects, supplied the design for the buildings, and Mr. C. E. Lancaster Parkinson has undertaken the direction and supervision of the work.



"QUEEN ALEXANDRA'S COURT," WIMBLEDON. GROUND AND SECOND FLOOR PLANS.

ERNEST GEORGE AND YEATES, HONORARY ARCHITECTS.



Photos : Advance Photo Co.

"QUEEN ALEXANDRA'S COURT," WIMBLEDON.
ERNEST GEORGE AND YEATES, HONORARY ARCHITECTS.

THE ARCHITECTURAL
REVIEW, AUGUST,
1905, VOLUME XVIII.
NO 105.

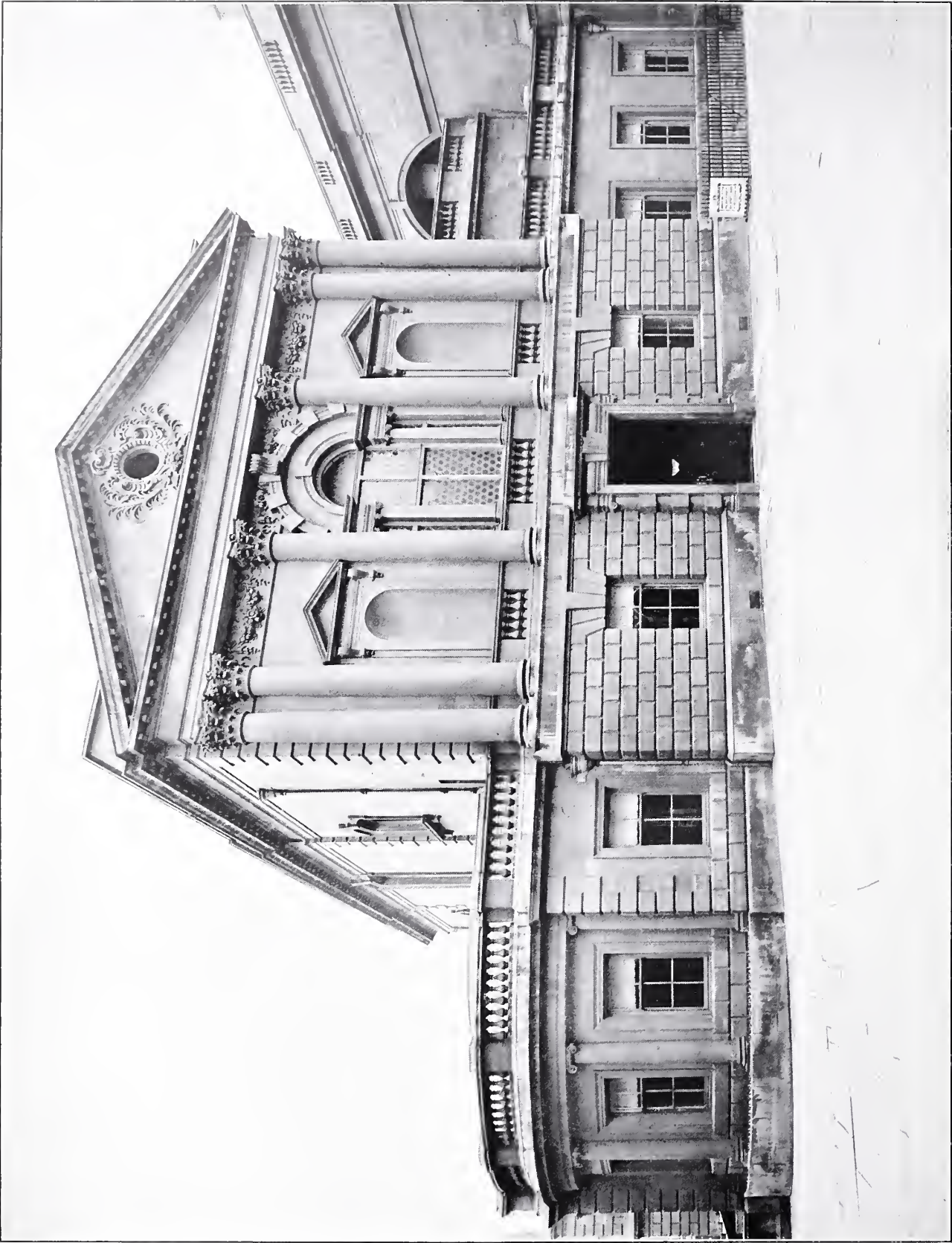


Photo : E. Dockree

THE CONCERT ROOM, BATH.

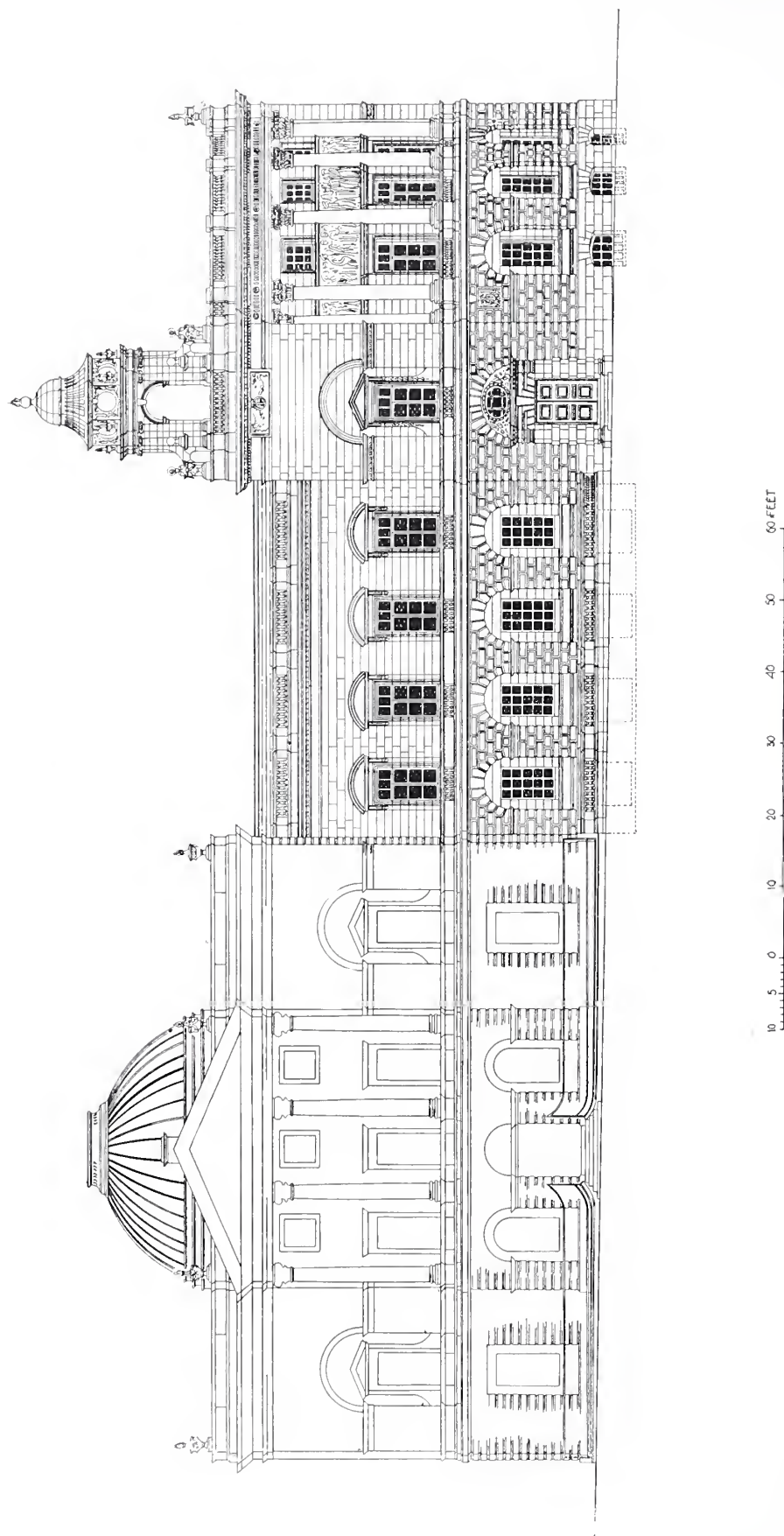
Brydon at Bath.—II.

THE discoveries at the hot springs helped to stimulate the awakening of architectural taste in Bath. Brydon's additions to the Guildhall had also a considerable effect in the same direction, though certain citizens refused to be convinced or were only "convinced against their will." The so-called Gothic revival stood for some time greatly in the way, though it had done nothing for Bath. Its influence had chiefly been seen in preparing for such buildings as the new hotel already mentioned, or the Police Offices just behind the Guildhall in Orange Grove. It is difficult to name the style which was to be seen in these and some other buildings. They were certainly not Gothic, yet they had a kind of bastard affinity with Gothic, and might, as I have said, perhaps either be called "eclectic" or "anomalous," according to the taste of the spectator. Brydon's gateway to the Guildhall yard seems to stand as a connecting link, or more exactly as marking the boundary, between his work and that of the city architect. It is not of great importance in itself, but deserves a word of commendation and shows that even in small things the designer spared no pains. The gate is carefully proportioned. The style is Tuscan Doric and the central archway is 19 ft. in height, the two square-headed side openings being each 9 ft. 6 in.

The controversy, referred to in the former article, as to the Roman baths, has been brought forward here as an example of the difficulties with which Brydon had to contend. In this matter we had the authorised and printed reports of the Society of Antiquaries to go by; but there were many others into which we need not enter. There was one case, however, on which it is necessary to touch. In close connection with the preservation of the Roman remains was the question already mentioned of a concert room which it was proposed to add to the Pump Room, both in close contiguity to the recent discoveries. The Corporation, or rather the Baths Committee of the Corporation, undeterred by what had taken place about the new municipal buildings, decided to hold a fresh competition. The conditions were somewhat peculiar. For some reason into which it is best not to enter too particularly now, several important facts about the proposed site were withheld from those competitors who were not already in the secret. Very little information as to the site was given. There were some individuals who knew that when a suitable design should be fixed upon, certain buildings then

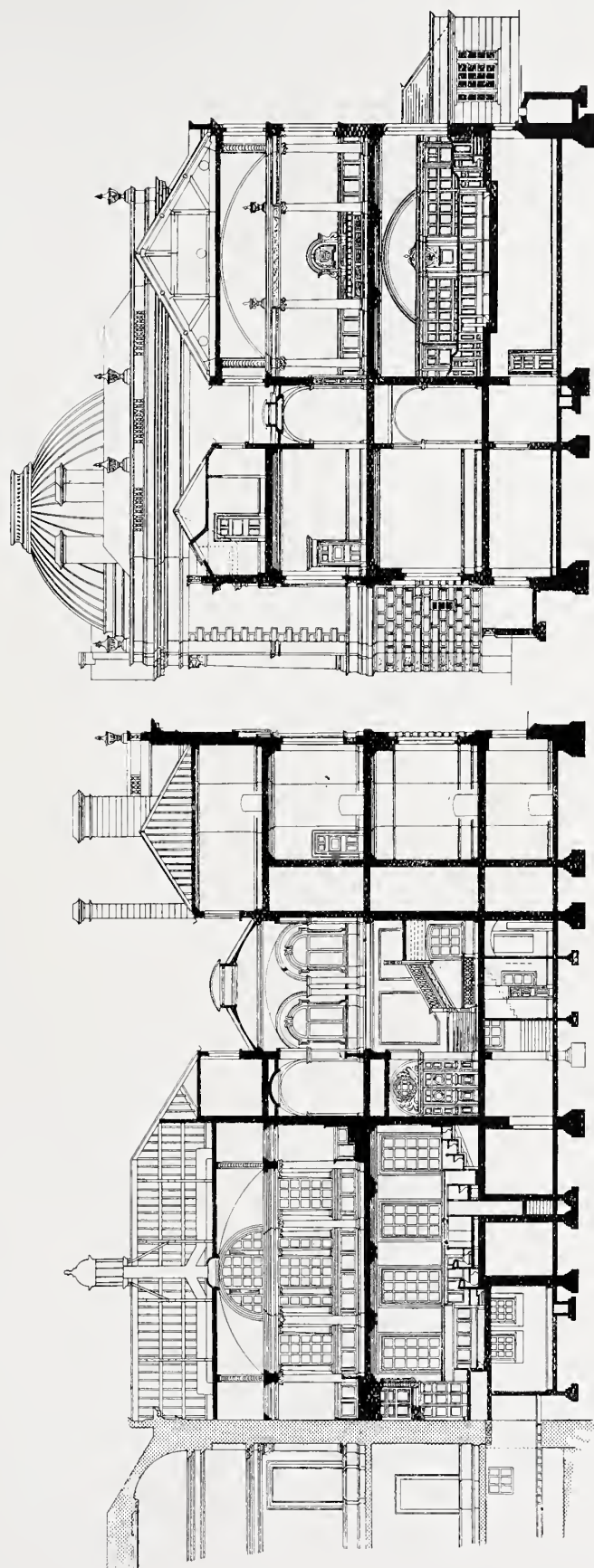
standing could be removed if necessary. This and other circumstances were nevertheless withheld, but the unsatisfactory character of the conditions did not prevent Brydon and several of the architects who had sent in drawings on the former occasion from competing again. It is not desirable to go into the controversies which naturally ensued when all the facts of the case were revealed. In the end Brydon's design received the first prize, and the first prize design was ultimately accepted by the committee.

In this drawing Brydon proposed to put a roof over the great Roman bath. It lies close to the old Pump Room, the front of which on the abbey churchyard is much as Baldwin left it, though the interior seems to have been considerably altered, and by at least two other architects. The west front of the old church occupies one end of the open space, and a colonnade the corresponding end to westward. It was now proposed to remove the houses and shops on the south side beside the Pump Room, and to continue the buildings with what was described as a Promenade Hall, a corridor from the Pump Room, and a museum for the antiquities discovered in or near the great bath. The front of the new hall was to be little more than a repetition of Baldwin's front of the Pump Room, although that has the serious fault of showing two storeys and an attic outside, while there is only one storey within—an arrangement very distasteful to Brydon, who preferred the Gothic rule by which the exterior of a building answers to the interior. There was to be a dome over the centre of the new building and a gallery for the orchestra on the east side, in a handsome bow with a rusticated basement and engaged columns above. The connecting building between the new hall and the old was to be of equal height. As to the roof which it was intended to place over the great bath, doctors differed. When in 1887 the idea of covering in the large area of the rectangular Roman bath was debated, a recommendation was made that the roof should be a light iron structure, arranged in such a way as to span the whole area without putting any new building on the ancient walls. Some such scheme was evidently in the mind of the architect. He described, in his proposals, iron principals covered with red Italian tiles, ventilation being secured by specially designed opening casements. The vaulting over the bath was to be of adamant plaster, which it was hoped would be impervious to any damp from the steam of the hot spring below.



ADDITIONS TO THE MUNICIPAL BUILDINGS, BATH.
 PRINCIPAL ELEVATION. THE LATE J. M. BRYDON, ARCHITECT.

Note.—The new buildings are balanced by a similar block, containing the Technical School, on the left of the old Municipal Buildings



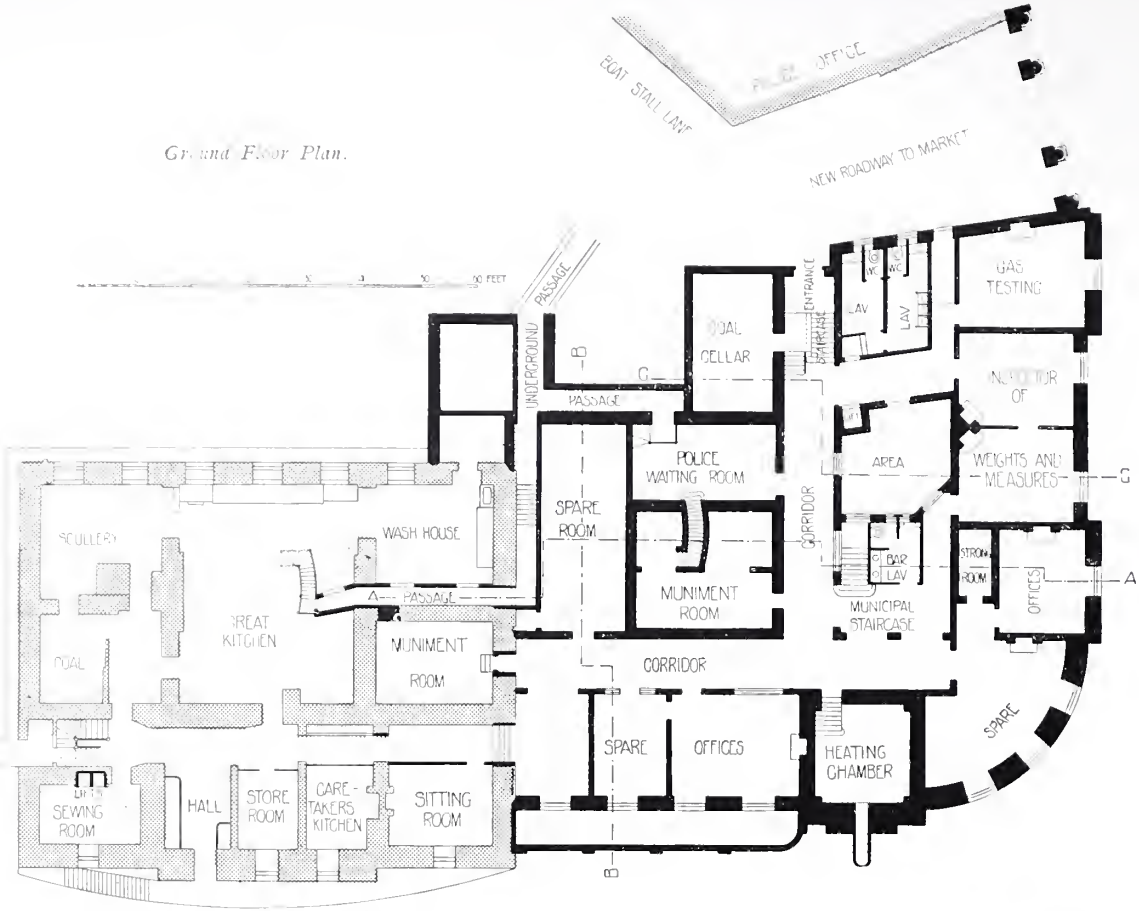
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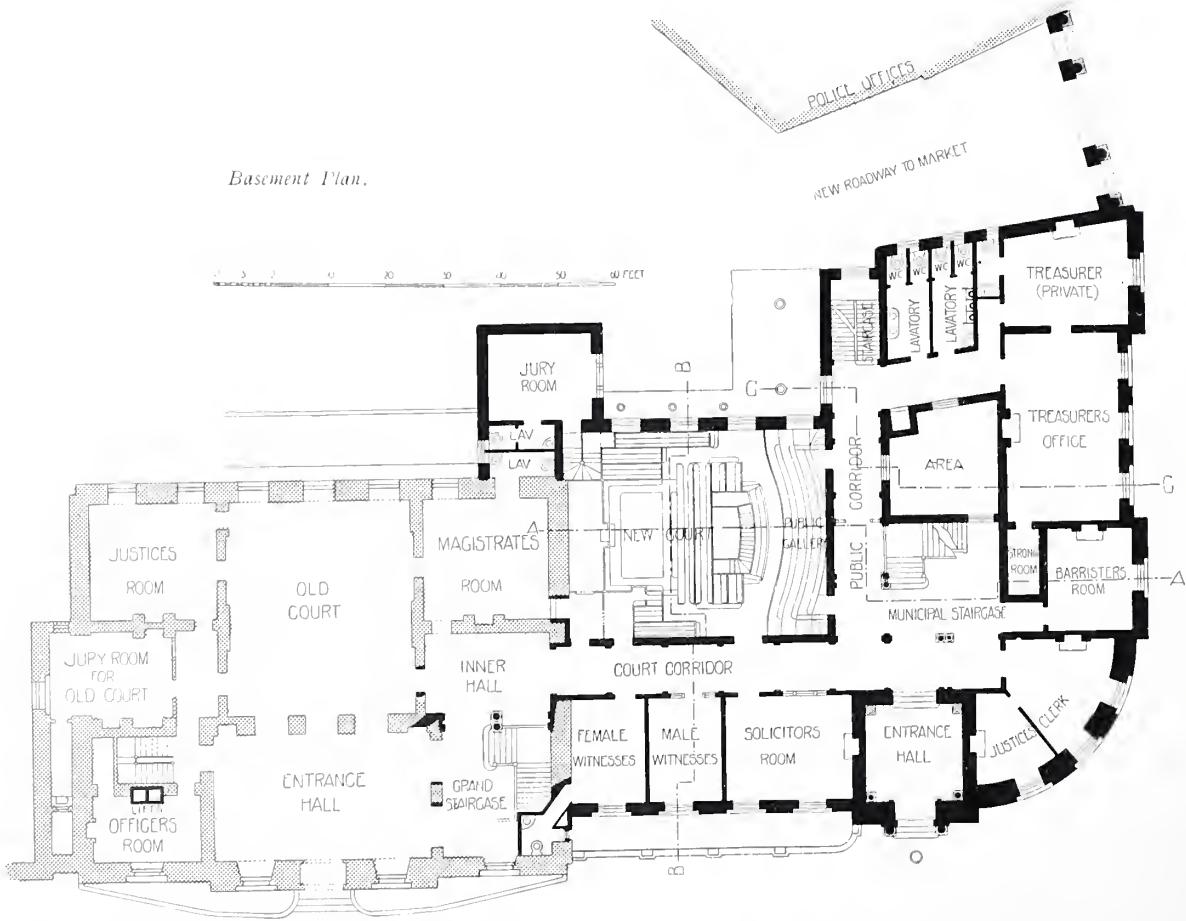


ADDITIONS TO THE MUNICIPAL BUILDINGS, BATH. THE LATE J. M. BRYDON, ARCHITECT.

Ground Floor Plan.

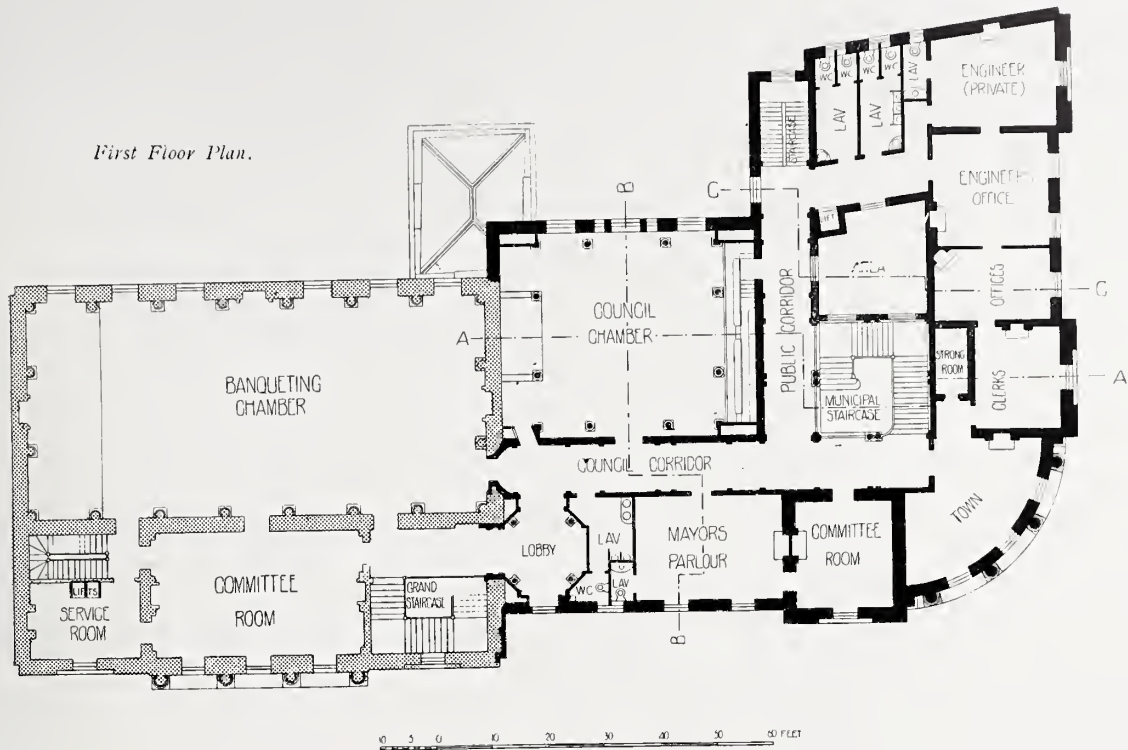


Basement Plan.



ADDITIONS TO THE MUNICIPAL BUILDINGS, BATH.
THE LATE J. M. BRYDON, ARCHITECT.

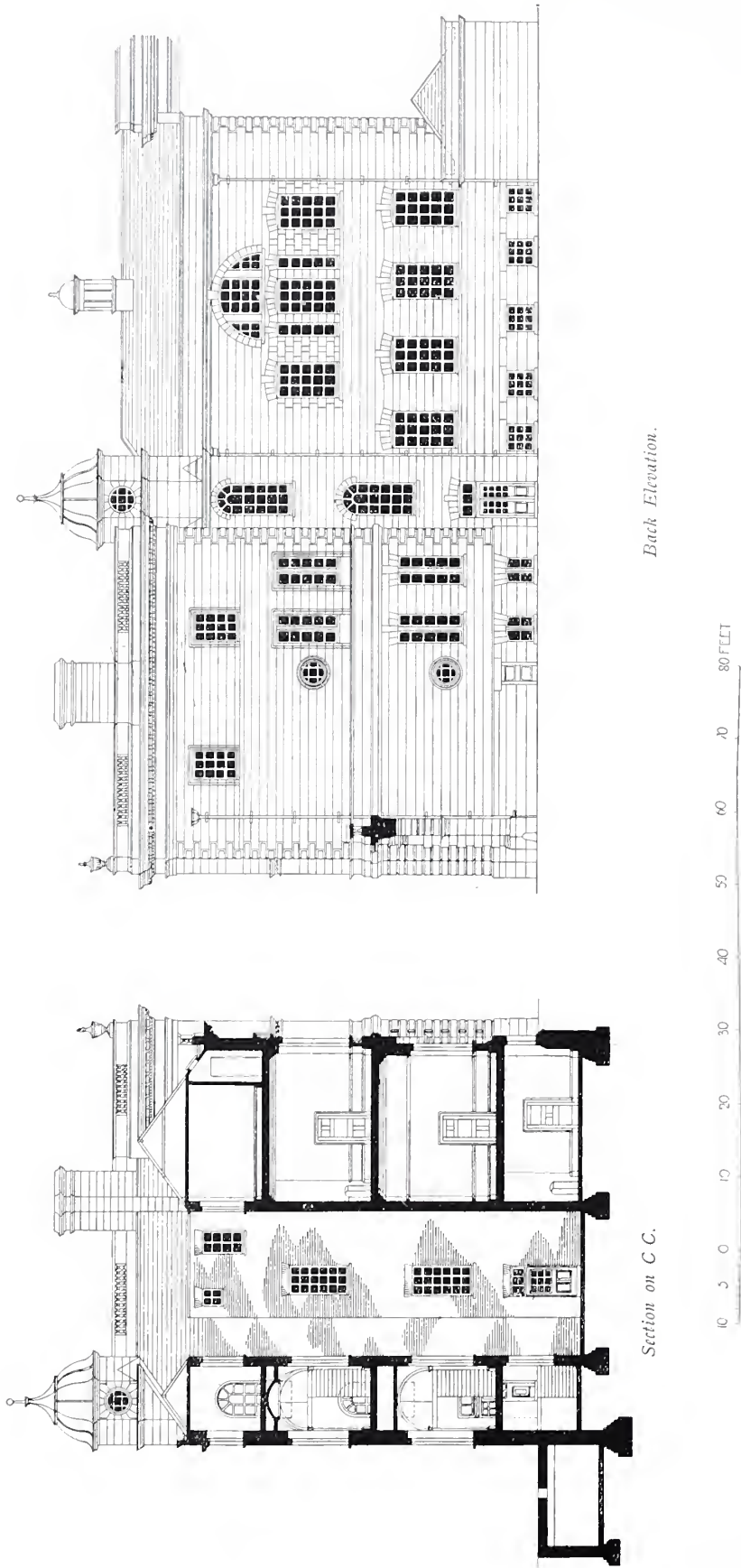
First Floor Plan.



Side Elevation.

ADDITIONS TO THE MUNICIPAL BUILDINGS, BATH.

THE LATE J. M. BRYDON, ARCHITECT.



Back Elevation.

Section on C C.

ADDITIONS TO THE MUNICIPAL BUILDINGS, BATH.
THE LATE J. M. BRYDON, ARCHITECT.

This whole scheme was subsequently abandoned, and it must be allowed on consideration that here second thoughts were best. When Brydon came to know all the conditions alluded to above, he modified, or indeed completely altered his scheme. The new design, that which has been carried out, shows a plain eastern side to the lower building, in which at the north-eastern corner is the staircase to the museum and the ancient remains. The interior of this stairway is shown on p. 58, and is extremely picturesque, being visible, through a vaulted corridor, all the way from the chief entrance near the Pump Room door. Instead of a repetition of the Pump Room front, this second design shows a fine composition of six Corinthian columns supporting a pediment and standing on a basement. There is a very handsome "Venetian" window in the centre adorned with Ionic pilasters, and two windows at the sides were changed eventually into arched niches. The basement has a square-headed doorway, between two windows, which open into the corridor above mentioned. There is thus no confusion of storeys, but the whole front tells its own tale. The connecting building is only one storey high toward the abbey churchyard.

To appreciate the interior of the new concert room, it may be desirable to remember the great admiration Brydon felt for the work of Wren. Traces are very visible everywhere of a careful study of such a building as St. Stephen's, Walbrook. Without attempting any comparison between the two it is evident that Brydon intended to apply some of the principles employed on the design of that beautiful church to the secular building at Bath—to endeavour, in short, to build a concert room which would produce on the mind of the visitor some of the pleasurable sensations which we have all enjoyed in seeing the little city church.

I had no personal acquaintance with Brydon until very shortly before his lamented death, when, at his desire, I called at 77, Newman Street. I well remember that among the few drawings hung on the walls of what may be described as his studio was a view of his design for the Whitefield Chapel in Tottenham Court Road. As is well known, another and more pretentious, not to say vulgar, design was preferred, and an addition was made to the number of prominent London buildings that one would prefer not to look at. Of Brydon's design, then hanging in the office, several points of resemblance to works of Wren were very apparent, and among them there could be no question that the interior of the chapel was directly inspired by that of St. Stephen's. He could not have had a better master, and it is now only possible to regret that he never gave to

the world any lectures or other expression in words of the result of the careful study he had made of Wren's designs. It adds to the feelings with which he is mourned to think how little he ever carried out and how much must have died with him. Undoubtedly this Whitefield Chapel drawing, which was in the Royal Academy exhibition of 1891, showed him at his best—at the level, that is, for which there was no scope either in the buildings for the Chelsea municipality erected in 1890, or in the Guildhall additions at Bath. In the concert room, small as it is, all the best qualities of the art of architecture as a fine art seem to be concentrated. It is much to be hoped that the authorities will not attempt to ornament or decorate it. To some minds every important building should have its features disguised under ornament. True, a great many modern buildings are the better of decoration. There is a purpose in making a gin palace gorgeous: it is intended to be attractive, and often succeeds. Whether or no Brydon would have added to the decorations of the concert room had he lived we have no certain information. Probably, since he left no designs for such work, he would have preferred that the slight ornament which in places accentuates the construction should tell its own tale; and would have waited until a revival of architectural taste should justify him. Extreme caution in dealing with it, and extreme care that no ignorant meddling is allowed, are, we may hope, the rules which will guide those to whom the care of this masterpiece is confided. We know what irreparable damage St. Stephen's, Walbrook, has suffered at the hands of two architects who might have been expected to know better. For this reason—namely, that any change, however skilfully designed, may prove to be for the worse—we cannot but hope that the concert room will be let alone at least until a greater architect arises to improve it.

The interior measures 71 ft. 6 in. from north to south and 39 ft. from east to west. The centre is 53 ft. in height, 40 ft. to the springing of the dome, and 26 ft. to the top of the entablature. The dome is segmental, the four pendentives marked and supported by four marble columns. They stand just clear of the walls, and are supplemented by four at the southern end and by two more and two brackets in the apse at the northern end, behind the gallery, which is placed here, and not, as in the first design, at the eastern side. The capitals of the columns are of a composite style in bronze gilt, the shafts of white and green marble. One cannot but wish either that they had been monoliths or that the pieces had been better adjusted. The windows include lights high up in the dome, a Venetian window at



STAIRCASE TO ROMAN BATH.

Photo: E. Dockree

the northern end, ordinary windows at either side, and semi-circular openings at the southern end. Two electric chandeliers, of delicate workmanship, hang from the arches north and south. The semi-domes at the ends are richly ornamented with plaster mouldings of a strictly architectural and conventional character, and with palm branches and wreaths. The central dome is similarly treated, but the pendentives have each a figure

representing in very low and unobtrusive relief one of the four seasons, delicately modelled. The mouldings in the soffits of the arches and the borders of the large panels of the white walls complete the scheme of ornament, and nothing better has so far been suggested by those who would add to the decorations as they were left by Brydon.

It should be observed that the concert room is not a parallelogram in plan. The angle formed

by the Roman bath at the back necessitated a slight deviation from rectangularity at the southern end, which is, however, completely carried off by the composite columns, which are not strictly speaking engaged, for this reason. Similar deviations occur, as is well known, in several of Wren's London churches. At the northern end the gallery and the apse above mask the corridor which here crosses on its way to the staircase and the museum chambers below. Commodious reading, tea, and smoking rooms are in the buildings adjoining, including a wide passage which leads directly to the great Roman bath on the south side. Instead of roofing over the bath, on second thoughts Brydon treated it like the *impluvium* of a

Pompeian house. The roof covers what are called the *scholæ* or platforms which extend round the bath—the places, we may suppose, described in the fifth chapter of St. John's Gospel as porches, where lay the blind, halt, withered folk, waiting for the auspicious moment at which to plunge in. Above, a terrace extends all round, supported on Tuscan columns so placed as not to interfere with the remains of ancient work. The parapet of the terrace is decorated with statues of a very classical type, representing the emperors and other Romans under whom *Aquæ Sulis* may have flourished, and at the side nearest the concert room the terrace is covered in with arches supporting the roof.

W. J. LOFTIE.

(To be continued.)

Notes.*

The British Designer—The Improvement of the Marble Arch—Christopher Kempster—The Press and the Architect.

AT a time like the present, when there is a general complaint of the slackness of business, it seems worth while to inquire whether the British manufacturer's methods might not be improved in some details both to his own advantage and also with a view to finding more constant employment for the many who do not know from one month to another whether they will not be forced to join the great army of the unemployed by the reduction of the manufacturer's output.

There are, for instance, large classes of manufactures which depend for their attractiveness upon their surface design. If this design is good and pleasing to the eye, the sale of the goods is likely to be considerable, and the corresponding profit to the manufacturer satisfactory. Such productions as wallpapers, cretonnes, and chintzes, printed silks, cottons, and muslins, linoleum and floorcloth, woven tapestries, brocades, curtains, and carpets may be indicated, and the list might be easily lengthened considerably. Since the cost of producing an inferior design is as great as that required by one of greater excellence (the number of colours used being assumed to be equal), it would appear to be to the interest of the manufacturer to select designs with great care, to pay such a price as would ensure the co-operation of designers of position and talent, and to treat the man upon whose brains his success is built in such a manner as to get the best work possible from him—in fact, to “grapple him to his soul with hooks of steel.”

Now what has been the short-sighted policy of the manufacturer, tempted perhaps by the large

number of students of design who are annually passing through schools of art? He has argued that if he only produces patterns for which he has paid little (but possibly as much as they are worth), the public will be obliged to buy what he chooses to give them, forgetting that many people, who in the aggregate form “the public,” have been educated in good taste, or have it innately, and prefer the simplicity of flat colour to the fussiness of bad ornament. Some time ago, too, some of them conceived the ingenious idea of further saving expense by inducing students who knew nothing about the proper market price of designs to submit their callow ideas to them—buying them for shillings instead of pounds, and handing them over to their hack draughtsmen to put into shape. This was a twofold injustice to the student—firstly, any fresh ideas which he, when fully trained, might have found of value, were obtained from him for a merely nominal sum; and secondly, the keen edge of them was so dulled by passing through the hack draughtsman's hands that, though new, they were not striking, and so he was prevented from obtaining that credit which should have been his—supposing that he had been able to break through the veil of anonymity which it appears generally to be the dearest wish of the manufacturer to keep spread between designer and public. How often has one seen it stated that such and such a piece of work was designed by Messrs. So-and-So—a notice which has a farcical appearance to those who know that Messrs. So-and-So are excellent men of business, but are entirely incapable of designing

* The Editor will be glad to receive from Architects and others short notes on topics of general interest.

anything artistic, individually or collectively! For a time these manufacturers reaped their reward in a considerable saving on the designs bill, and the competition lowered the average price of designs till it reached a starvation rate, and many of those who were able to do other things abandoned so badly paid a calling, and turned their attention in other directions, and these were not the least competent designers.

But concurrently with the reduction of cost came a complaint of bad trade. In fact, a saving on the cost of production had been made at the price of losing the market. It was said that German competition was so keen that some protection was needed by the poor British manufacturer, who really needed protection mainly from the consequences of his own short-sighted policy!

On the Continent things are managed differently. Art research is subsidised, as is science, and many of the things left in this country to public-spirited private enterprise are assisted by Government grants. Therefore trade flourishes, and improved processes are introduced, while we in England lag behind. The manufacturers also are alive to the necessity of obtaining good designs. From Germany, from Holland, from Sweden and other countries commissions come to English designers. Clever young men are engaged to design exclusively for a term of years for foreign firms, and managers are sought for to manage factories which are to compete with English works. It is a matter of national importance that some change should be made. The passion for cheapness is ruining many trades, while the old boast of Great Britain, viz., that her productions were the best that could be obtained, is now merely ancient history. A prosperity founded on cheapness is a fallacy, for the Oriental peoples will inevitably undersell the European market when they seriously take to manufacturing; but there will always be a certain demand for excellence in craftsmanship and design, and England is still in a position to supply that demand, especially in the matter of design.

It is scarcely to be expected that such prosperous times will return as those when, for instance, the printers of printed muslins made £12 a week, while the masters also made large profits. The manufacturers have made that impossible by their suicidal and greedy competition, nor would they now allow such a proportion of profit to filter through to the men who do the work; but there are surely other modes of working by which profits would be equitably distributed, and the dangerous accumulation of enormous wealth in a few hands prevented. That country is not rich which has great amounts of capital concentrated in a few hands, and slow starvation and discontent op-

pressing the majority; and though the English are a patient race, there will come a time when the right of rich men to tax the rest of the community for their own benefit will be questioned. It is therefore to the interest of the rich manufacturer in several ways to do his best to increase employment. He has tried reducing cost to the lowest point and finds it does not answer. Let him try paying more for brains, and see whether he cannot also lessen competition by keeping the English designer working for English production.

S. S. G.

NOTE.—The author recognises that these remarks do not apply to all manufacturers.

* * * * *

WE cannot pretend to any very great admiration of the plan of a suggested improvement at the Marble Arch as proposed by "A Citizen of London." The proposal briefly is this: that a large semicircular open space, 360 feet in diameter, should be formed immediately behind the Marble Arch on land at present enclosed by the Park railings. With the exception of a stable at Park Lane corner no private property would have to be acquired, and the cost of the alteration, which aims not only at relieving the congestion of traffic, but improving the surroundings of the Marble Arch, is estimated at £15,000, exclusive of the price of the stable and a suggested memorial screen commemorating His Majesty's efforts to promote international peace. Our lack of enthusiasm can be quickly explained. In the first place, on utilitarian grounds, we doubt whether the new plan would aid traffic very greatly. Judging merely from the design we should expect that the cross traffic between Park Lane and Edgware Road would be decidedly hampered not only by having to pass through a gateway, but by the lamp-posts which seem somewhat profusely strewn over the crescent. Moreover the alteration would have the effect of moving on the 'bus stopping-place till it was immediately facing the Edgware Road, which would certainly not be any advantage. Again, from the artistic side the improvement is not absolutely certain. It is quite impossible to compare the Marble Arch with the Arc de Triomphe and other arches where the general nature of the surroundings is so utterly different, and we very much doubt if that "repose" which the "Citizen of London" is seeking would be promoted by a constant tide of vehicles passing all round the very foot of the Arch, which would stand out somewhat ridiculously and unmeaningly amid the traffic. An arch, clearly, should give the impression of leading somewhere even if no traffic actually passes through it. We do get that impression now, but it would be entirely lost if the thousands of vehicles now coming up Park

Lane cut right across what would be the natural road for the Arch to span. We are not averse to improvements at the Marble Arch, but we cannot honestly enthuse over the present suggested remedy for the evils now existing.

* * * * *

I ASKED last month for a copy of the inscription on Kempster's monument at Burford. Sir Thomas Drew, of Dublin, kindly sends a note made six years ago, during a visit to Burford. He had never at that time heard of Kempster as an architect, but copied the epitaph thinking it might interest a friend of the same name. The date (1715) will be noted as differing from that previously mentioned:—

"Christopher Kempster, Freeman of the City of London, and of the Company of Masons.

"He was a person eminent in his profession, and built several churches in the said city, and was many years employed in building the Cathedral and dome of St. Paul's.

"Lived in love and amity with his dear wife near sixty years, by whom he had five sons and seven daughters, and chose this parish where he was born for a place of retreat from business in his later years.

"He died Aug. 12, 1715, in the 89th year of his age.

"'Mark ye the perfect man,' " etc.

"His son William erected this in memory of his father."

There follows a coat of arms, *A chevron voided between three castles*, and notes of the death of William Kempster, just named, "of Upton, in this parish," in 1717, aged thirty-nine years, and of another of the family.

From this we gather that the builder (or architect) of the Market House at Abingdon was born at Burford in 1626 or 1627, was in Wren's office with the Stronges when he was forty-five, and at Abingdon when he was fifty and until he was about fifty-six; we may also note that though he lived to be eighty-eight, he was long survived by Sir Christopher Wren, whose death occurred in 1723. Also, and this should by no means be omitted in any endeavour to estimate Kempster's position, that he was "a gentleman, of coat armour," at a time when such things were much more seriously regarded than they are now.

W. J. LOFTIE.

* * * * *

CONCERNING a paragraph which appeared in these columns the other month about the attitude of the guide-book maker towards the architect, a correspondent points out that it is not the guide-book maker who is the worst offender. Even the most responsible of our daily newspapers nowadays give lengthy descriptions of

important new buildings without a word about the designer. A notable case was the recent opening of a vast new hotel in the Strand. In one stupendously popular journal the names of everyone connected with the building down to the plumber and carpet-maker were given, while the architect was of course not mentioned. It is a delicate question of etiquette whether in such a case the architect should let this pass without comment. In one notable case of the kind last year he did not. It is an interesting study which I never miss (he continues) to go over the newspapers the day after a building has been opened by a royal personage. I may remark that an opening ceremony by a royal personage is one of the few known methods by which the press of the country may be made aware that a considerable piece of architecture has been added to the possessions of the country. The other week we had the opening of the new homes for officers' widows at Wimbledon. I think two of the London newspapers mentioned the architects. I forget exactly how many mentioned the builders, but several took that course. Some of them dropped into admiration chiefly because there was supposed to be something "quaint and old-fashioned" about the buildings, but their admiration did not lead them on to inquiries as to the particular professor of the art whose work had inspired them with these sentiments.

Architects have, of course, no great quarrel with this, for the fierce light of publicity that beats about the other arts is not a desirable or helpful thing to serious workers; and moreover if their names were on the tongue of the public as are the names of their brothers of Burlington House a flood of uninstructed criticism would be let loose, and clients would become even more wedded to the belief that their own unprofessional ideas are the sounder. At the same time the coming of the illustrated daily makes the position different from what it used to be. Many of the newspapers now give excellent illustrations of new buildings. I noticed, for instance, the *Daily Graphic*, whose attitude towards the arts has always been commendably responsible, gave an excellent half-page illustration of the new City Hall, Cape Town, mentioning only that "the organ was supplied by English builders." The name of the photographer was given underneath in one corner. The architect might also have been considered worthy of this honour. In the case of an elevation of the building where people can form their own opinions it would be a helpful thing, both to lay and professional readers, if this were done in all cases, and I would respectfully call the attention of your brother editors to the matter.

B.



FIG. 2.—KNOLE.

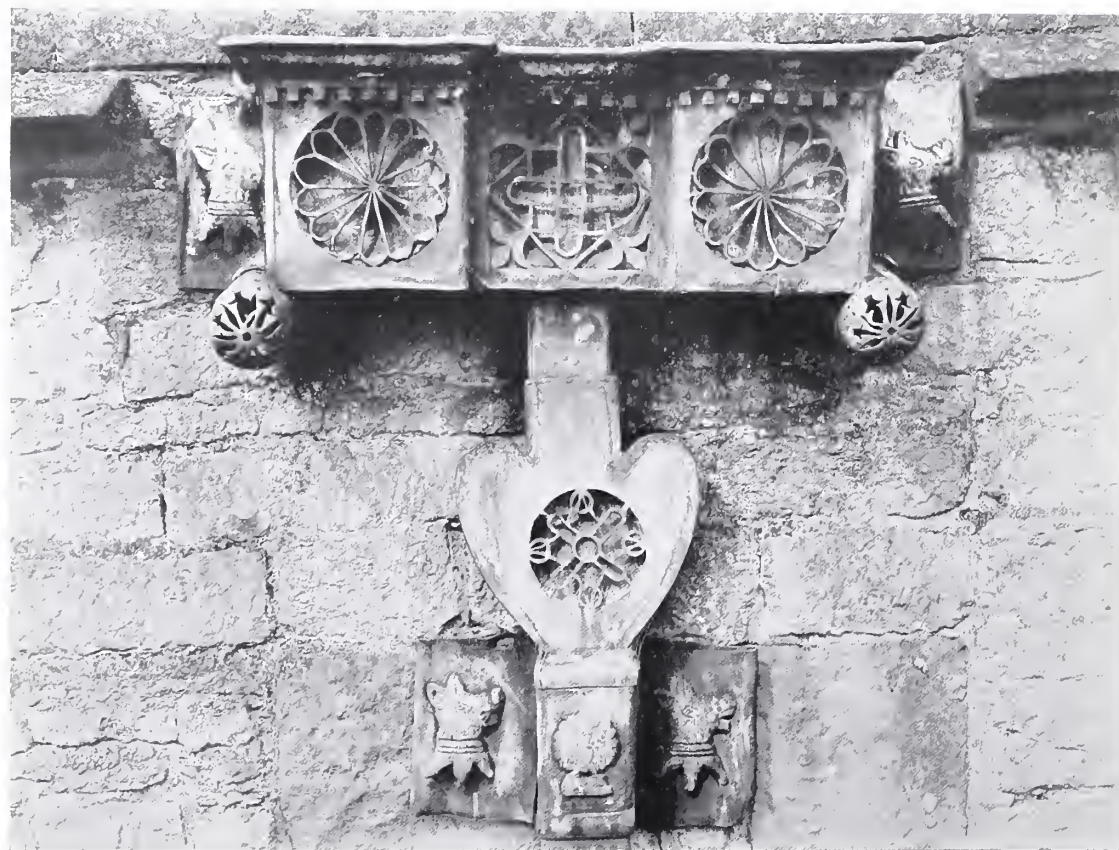


FIG. 3.—HADDON HALL.

English Lead Pipe-Heads.—I.

THE reasons for the undoubted neglect of the artistic history of English leadwork in general and of rain-water pipe-heads in particular are not very apparent. The design of lead pipe-heads receives so much attention from architects and others that it is not a little odd that the examples of the past have been so generally ignored. A short chapter in Mr. Lethaby's short book and a few papers read before learned societies, and by them decently interred in their proceedings, make up the only literature of the subject. Some measured drawings in "The A. A. Sketch Book" are valuable as records, but the measured drawing is never very sympathetic. Mr. Blomfield's and Mr. Gotch's books and other histories of architecture give a few random sketches, but however charming the pen or pencil of the artist there remains an uncertainty of accuracy which is anathema to the student. Photography, in fact, is our only friend, but rain-water heads are often so high as to defy the ordinary camera and to make successful records a matter of some difficulty. There seems also to have been a conspiracy of neglect on the part of the museums. Until a few months ago South Kensington did not boast a single rain-water head, though in other directions metal-work is well represented. The museum has now acquired (but only on loan I believe) some late seventeenth-century heads, which I shall illustrate next month.

Among provincial museums Nottingham is an honourable exception, but even there the collection includes only eighteenth-century examples.

At the Guildhall there is one, but it is pitifully dull. The Lydney Park head at the Architectural Museum, though interesting, is late (1692) and not very distinguished.

I am not complaining of this museum apathy; the proper place for architectural details is their native building, not a museum wall; but it perhaps explains a certain ignorance of what the plumbers of three centuries gone could do and did.

The Continent does not help us to knowledge. The foreign leadworker's art and fancy rioted in roof-cresting and finials; but pipes and pipe-heads seem to have left him cold. It is characteristic of the practical genius of English building that the external down-pipe is a distinctively English method of disposing of rain-water. The only in-

teresting foreign rain-water head I know is from a sketch of one in Belgium. It might be of the seventeenth century. Here the design is influenced by the grotesque gargoyle, which was sometimes, even in mediæval work, made entirely in lead instead of, as usually, in stone. In Italy there are, I believe, no rain-water pipes except modern iron ones of the worst type. Though the Romans were often careful to conduct the rain-water falling on roofs to the ground by pipes instead of shooting it off by projecting spouts, I have found no evidence that these pipes were other than of stone or terra-cotta. They used lead freely for service pipes, but apparently not for rain-water pipes. Mr. Lethaby, in his book on leadwork, quotes Viollet-le-Duc ("Conduite"), who says that in the fourteenth century lead rain-water pipes were in use in England, but nowhere else.

Viollet-le-Duc sketches what is to me a most unconvincing lead head and length of square pipe, but unfortunately does not suggest where the head is to be found, and I have found nothing so early by two centuries. Mr. Lethaby says that fragments of pierced work in Gothic patterns, which formed parts of pipe heads, have been found at Fountains Abbey; but I am told that the fragments in question are parts of lead-ventilating quarries. I can, however, give an earlier reference than Viollet-le-Duc to English rain-water pipes. Henry III., in 1241 (see *Liberate Roll*), writes to the Keeper of the Works at the Tower of London: "We command you to . . . cause all the leaden gutters of the great tower through which rain-water should fall from the summit of the same tower to be carried down to the ground, so that the wall of the said tower, which has been newly whitewashed, may be in no wise injured by the dropping of rain-water nor be easily weakened."

The use of lead down-pipes grew probably rather from a desire to save water for domestic use than to avoid the splashing down on the wayfarer's head of the discharge from projecting spouts. The use of porous building stone, liable to erosion through the water being blown against the walls in its fall, would tend to the same end. Viollet-le-Duc shows a lead pipe of the thirteenth century in a vertical stone chase, sufficiently set in to allow of thin pieces of stone coming in front of the pipe in alternate courses of the masonry.



FIG. 4.—LEIGHTON BROMSWOLD.



FIG. 5.—DOME ALLEY, WINCHESTER.



FIG. 6.—KNOLE.



FIG. 7.—HADDON HALL.



FIG. 1.—GRESFORD CHURCH.

The fixing of the pipe in the face of the wall is apparently a later development due to the greater simplicity of the method and the recognition of its decorative possibilities.

Where down-pipes were not used, the lead covering the roof gutters was often dressed through the opening in the parapet, lined the channel of the gargoyle, and extended beyond it, as on Gresford Church (Fig. 1). In other cases, as at Uffington Church, the gargoyle was a long lead channel supported on an iron stay (illustrated in Twopeny's drawings, "*English Metalwork*"). At Hardwicke the lead gargoyles are bulged, slit, and twisted to the form of an Elizabethan puffed sleeve.

On the Mayor's Parlour, Derby, there is a curious nicked and curled lead gutter, with short round tapering spouts hanging from it at intervals. These spouts discharge the water clear of the face of the building. This house is probably of the last quarter of the fifteenth century, and the little spouts are interesting as being embryonic down-pipes.

At Leighton Bromswold Church (Fig. 4) a head and two lengths of pipe end unexpectedly in a projecting spout some way from the ground. It is not quite clear why, after using head and pipes, the plumber surrendered the prime use of them by failing to carry the water the whole way in pipes. Most of the Haddon Hall pipes and heads were originally arranged in the same way, but the modern passion for gullies has changed all that. The projecting spout or shoe is stayed with an iron bar, and the work, apart from its richness and intrinsic value, has a sentimental interest. It is dated 1632, and was fixed on the chancel wall at the restoration done by George Herbert, who

was patron of the living. "The Temple" has no poem on "The Church Pipe-Head" to stand by "The Church Porch." It would doubtless have puzzled even the prince of symbolists to have found a spiritual significance in a spout, but the memory of Noah might have provoked his muse.

Both Mr. Reginald Blomfield and Mr. Starkie Gardner, when writing of leadwork, refer to the head at Hampton Court Palace (Fig. 8), bearing the initials "H. R." and the date 1525, as being probably the earliest remaining, and with such authorities one does not lightly disagree. Having examined it, however, I am satisfied that so far from being of the sixteenth it is certainly of the nineteenth century. It is fresh looking and the arrises are sharp. I learned from the resident surveyor, to whom I communicated my suspicions, that about forty years ago there was a strenuous master plumber at Hampton Court who renewed with some ferocity. Doubtless the existing heads are approximately like the originals, but the top mouldings are ugly and suggest the Victorian plumber at his coarsest. I know no authentic early heads with the same mouldings.

Amongst the earliest authentic heads are two at Windsor Castle, one of which is dated 1589 (Fig. 9). These were originally on the Elizabethan portion of the Castle on the north front, now part of the Royal Library. They were taken down in February 1904, repaired, and (by Mr. A. K. Nutt's kindness) photographed for me. All the letters, ornaments, and cresting are applied. Their plan is curiously irregular and interesting, and the royal beast on the right side of the dated head is a very blithe piece of modelling. The date of lead heads is not, however, always so clear as at Windsor. Mediæval feeling died hard in leadwork. The spirit of the Renaissance worked in spasms, and it was slow in leavening the plumber's art with the new conventions. It was, moreover, so local in its incidence that the dating of sixteenth and seventeenth century work is a perilous enterprise, and "about" a word of Mesopotamian blessedness. "About" 1580, then, we may place the engaging gutters of vine pattern, and the frankly funnel-shaped heads at Winchester in Dome Alley (Fig. 5). The traditional manner still holds sway here. The Tudor rose and the leaves, strewn over the surface in a pleasantly casual fashion, are richly and happily modelled. The pomegranates which decorate the pipe-sockets perhaps have an ecclesiastical significance. The form of gutter, so universal to-day in the hard sharpness of cast-iron eaves-gutter, was rare in early days. The more usual form was the straight parapet type as on Lincoln Cathedral and at Old Palace Yard, Coventry, where the bottom of the gutter rests on the



FIG. 8.—HAMPTON COURT.



FIG. 9.—WINDSOR CASTLE.



FIG. 10.—HADDON HALL.



FIG. 11.—HADDON HALL.



FIG. 12.—HATFIELD.



FIG. 13.—GUILDFORD.

top of the wall. At Dome Alley, however, it is of modern shape, and rests on plain iron brackets. The water issues from the valley, under a triangular apron decorated with a Tudor rose, and is carried by the gutter to the head and down-pipe.

At Knole Park, Sevenoaks, the art of the lead-worker is seen *in excelsis*, and the two examples here illustrated show the complete control of the man over his material, and his vigorous facility when dealing either with broad and simple or with delicate and almost feminine treatment. The lacework effect of the head in Fig. 2 is of happiest possible contrast with the masculine grip of the example in Fig. 6, with its chequers and chevrons outlined in bright tinning. In the photograph of the former there is a certain harshness due to my having had white paper put into the pierced turrets, but without it the delicate network would not have had full justice. It will be noted, too, how in the plainer pattern the strength of the simple lines of the design are lightened by the little embattled cresting and cable moulding, a detail much beloved in the early seventeenth century and always successful.

However richly decorated the work of this period, it is always restrained, never insistent. Knole has 47 heads in all, and there are about 30 different types. In some of the heads pierced fronts, instead of standing away from the main part of the head, are laid flat upon it, and are in all kinds of pleasant Elizabethan patterns. The detached pierced work, however, is infinitely more effective by reason of the bright spots of light which alternate with sharp shadows and touch the whitening lead to silver.

Hatfield follows close on the heels of Knole. The latter work is from 1604 to 1607. The best Hatfield heads are of 1610, and pierced turrets alternate with skilfully cast coats-of-arms with supporters, dates, and initials. R. S. (Fig. 12) is, of course, for Robert Syssil, a spelling which has not survived to support the modern pronunciation.

As I have elsewhere pointed out, the treatment of the Hatfield heads is so like that of the Knole heads that it is hardly a diseased fancy to suggest that they are all by the same hand. However splendid the work at Knole and Hatfield, there is a quality about the heads at Haddon Hall which stirs to positive affection. There is a wealth of pure invention, a sense of material so just, a humour so spontaneous yet gently sardonic (Fig. 10), an historic revelling in the coats-of-arms of forgotten heiresses, that must move us to amazement. Truly these seventeenth-century plumbers were Admirable Crichtons in their craft.

Fig. 2 shows one of a series of heads of a very sumptuous type, the pierced work of which

it is interesting to compare with that of Knole. It is distinctively Gothic and of a free and unstiffened manner, although some thirty years later than the cognate work at Knole. The new ideas, however, have made their mark in the cornice, and we can scarcely find an example in the minor arts where the overlapping of the styles leaves a result so harmonious.

The head of Fig. 10 has a peculiar value, for it seems to hark back to the Norman corbel for inspiration and is altogether a very pretty jest in lead. The spirit of the mediævalist was evidently still abroad when this was conceived (about 1600). We have here a grim pleasantry very different from the polite wit which suggested the arabesque masks of a few years later (to be illustrated next month). No less untouched by the rising manner but of a graver kind is the castellated head decorated with fleur-de-lys of Fig. 7, which is probably of the same date as that of Fig. 11. The latter is fixed in the Upper Court, and the initials are those of Sir John Manners, whose elopement with Dorothy Vernon goes far to support our claim to be a romantic people.

The pipe joints are varied and delightful. Some are decorated with disks of tracery fixed on wide doubled ears. The Manners peacock and the Vernon boar's head alternate with shields of arms, fleur-de-lys, and even with the heart ornament of Fig. 14, which will gladden the (happily now discredited) disciples of L'Art Nouveau.

The pierced cylinders which appear on the traceried heads (Fig. 3) deserve a word. Mr. Lethaby suggests that they carry the heads. They are simply thin hollow cylinders and could only support the heads if they were the casings of oak plugs, of which there is no evidence. They are wiped on to the heads. The actual supports, where there are any other than nails, are plain iron staples driven under the heads. The theory of oak plugs seemed so plausible that I inquired as to whether, when the heads at Bolton Hall, which have similar cylinders, were taken down at the recent rebuilding, there was any sign of plugs, but there was none. As similar cylinders occur at Coventry, and my own examination of these showed no plugs, I conclude that they are purely ornamental. I am particularly indebted to Captain Charles Lindsay for the photographs of Haddon Hall which he kindly permits me to reproduce.

At Abbot's Hospital, Guildford, which was building from 1627 to 1629, the departure from the early manner becomes more marked, and frankly classical pilasters appear on the front of some of the heads. The modelling of the flower ornaments of one of the heads on the High Street front is capable if a little clumsy, and the pierced parapet



FIG. 14.—HADDON HALL.



FIG. 15.—GUILDFORD.

is characteristically Jacobean; the heads in the quadrangle are smaller and simpler. Fig. 13 shows one with two heavy horizontal bands which perhaps strike the eye as ugly, but I have got to like them for the vigorous shadows which they give. Fig. 15 shows a pleasant pattern on a pipe socket, done in bright tinning, now almost effaced by paint.

Next month I shall deal with the later work, in which the classical detail has become triumphant, and Gothic detail, where it appears, seems uncomfortable and apologetic.

LAWRENCE WEAVER, F.S.A.

Figs. 2 and 6 are from photographs by Essenhigh Corke & Co. The photograph of Fig. 4 is reproduced by the courtesy of the Rev. E. Hermitage-Day and the Proprietors of "The Treasury."

Competitions.

LAMBETH MUNICIPAL BUILDINGS.—The first premium in this competition was awarded to Messrs. H. A. Hall and S. Warwick: the second premium going to Mr. H. P. Burke Downing. Messrs. Hall & Warwick give the following particulars of their design:—

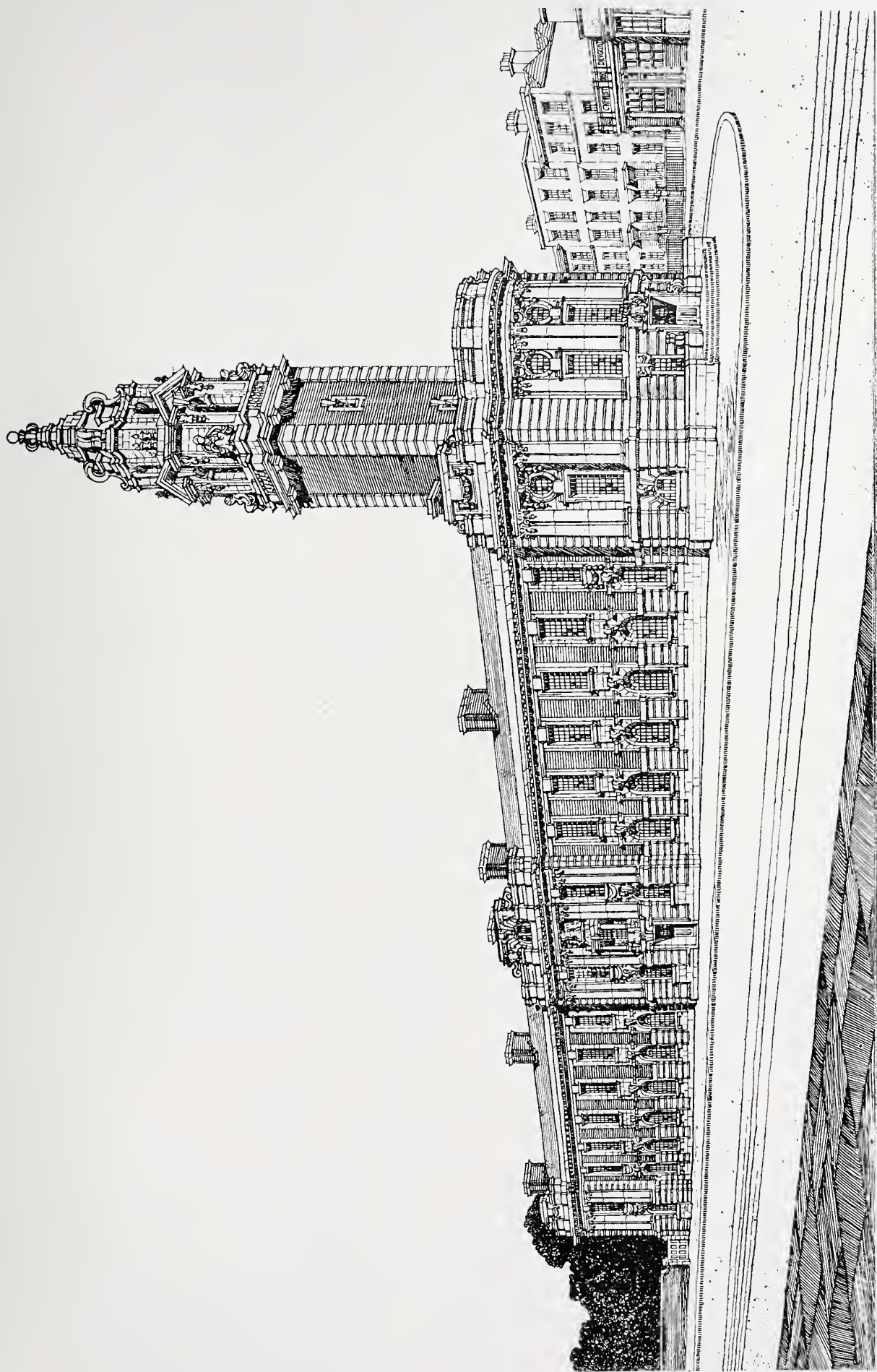
General Arrangements.—The buildings are arranged on the site so as to use the angle to advantage and leave the utmost room at the rear without having to cramp the present buildings. The main entrance and grand staircase are placed at the corner of Brixton Hill and Acre Lane, as being the most convenient position having regard to the station close by. This arrangement also lends itself to a satisfactory treatment of the angle. The council chamber, rates office, and rates appeal office are placed on the main axis of the buildings, where they are easily accessible from their respective entrances, and are well lit and free from noise. All the rooms of the several departments are grouped together, and the sizes are in every case those required.

Exterior.—The elevations are treated in a free classic manner in Portland stone and red brick.

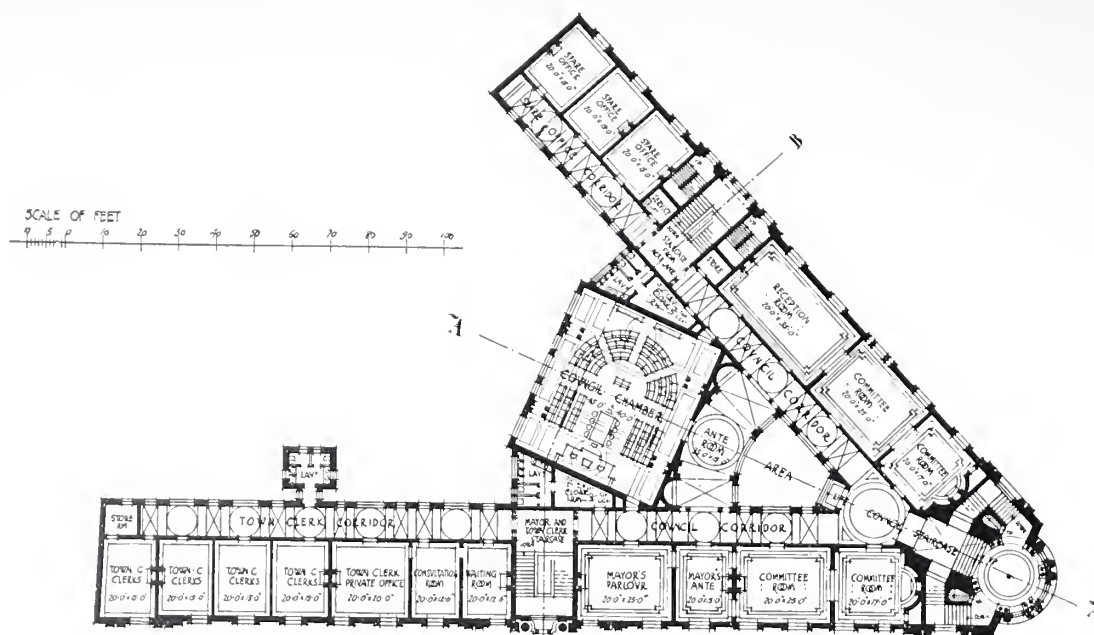
A tower is designed to accentuate the main entrance, and add dignity and importance to the whole building.

First Floor Arrangements.—On the first floor the corridors branch off from the head of the grand staircase with committee-rooms on either hand, and lead to the council chamber, which is thus equally accessible from both corridors. The ante-room forms a spacious division lobby, and makes access convenient throughout the various council rooms.

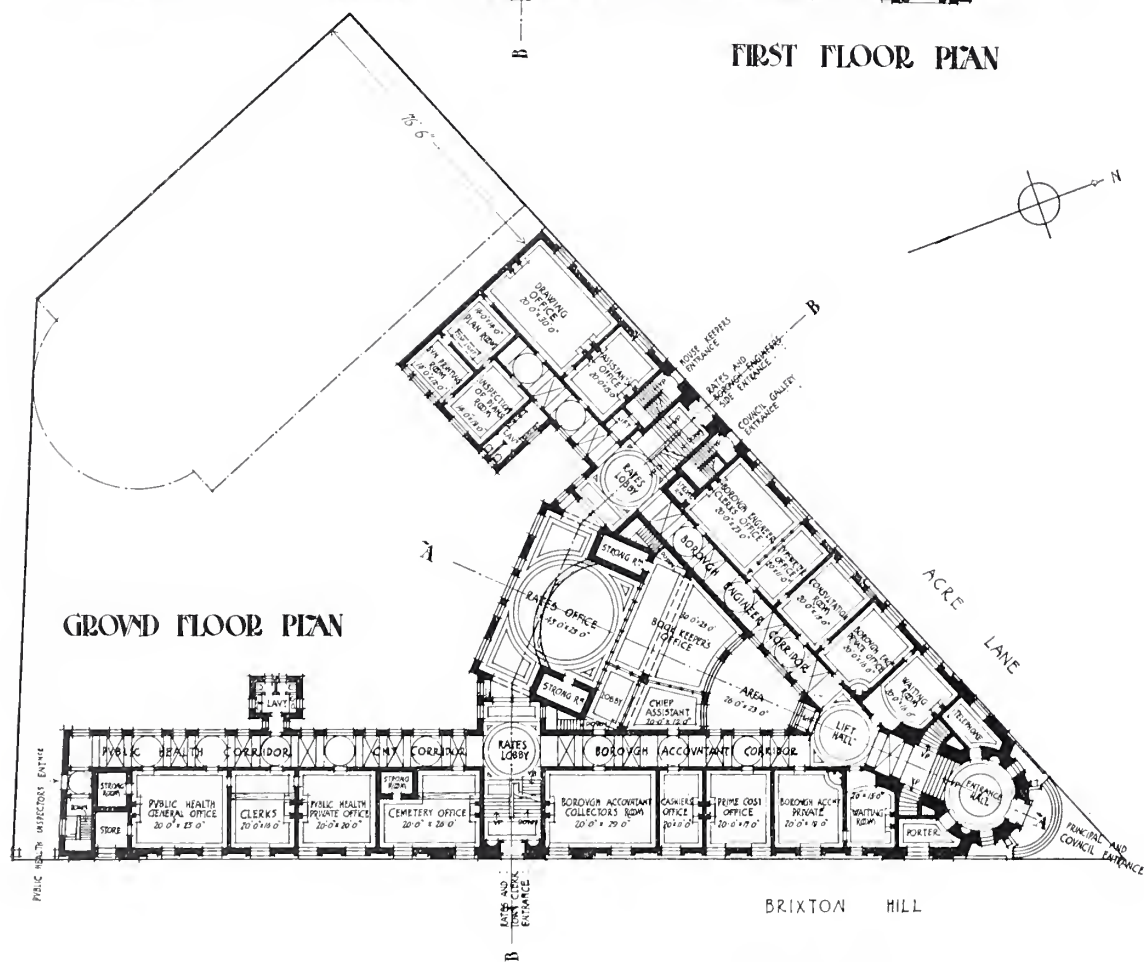
Materials.—The elevations will be carried out in white Portland stone and red bricks—six courses to the foot with wide joints. The roof is to be covered with green Tilberthwaite slates. The whole of the work will be fire-resisting throughout. The grand staircase will be in Hopton Wood stone, with polished balustrades and dado of the same material. The main landing is to have a domed ceiling, with coffered ribs and enriched panels. The council chamber is to be panelled in oak and to have marble columns and segmental plaster ceiling over. The committee-rooms are to be panelled in fumed pitch pine, and to have segmental plaster ceilings.



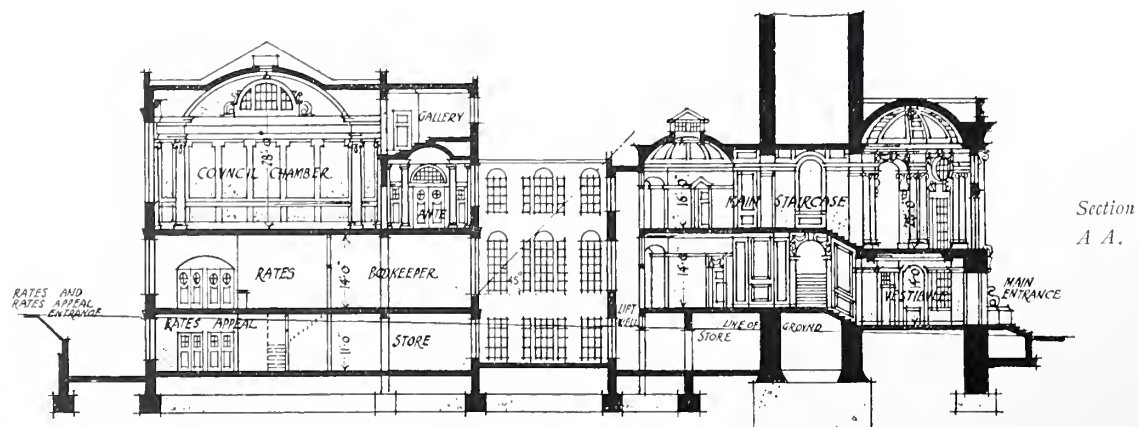
LAMBETH MUNICIPAL BUILDINGS COMPETITION. ACCEPTED DESIGN.
HALL AND WARWICK, ARCHITECTS.



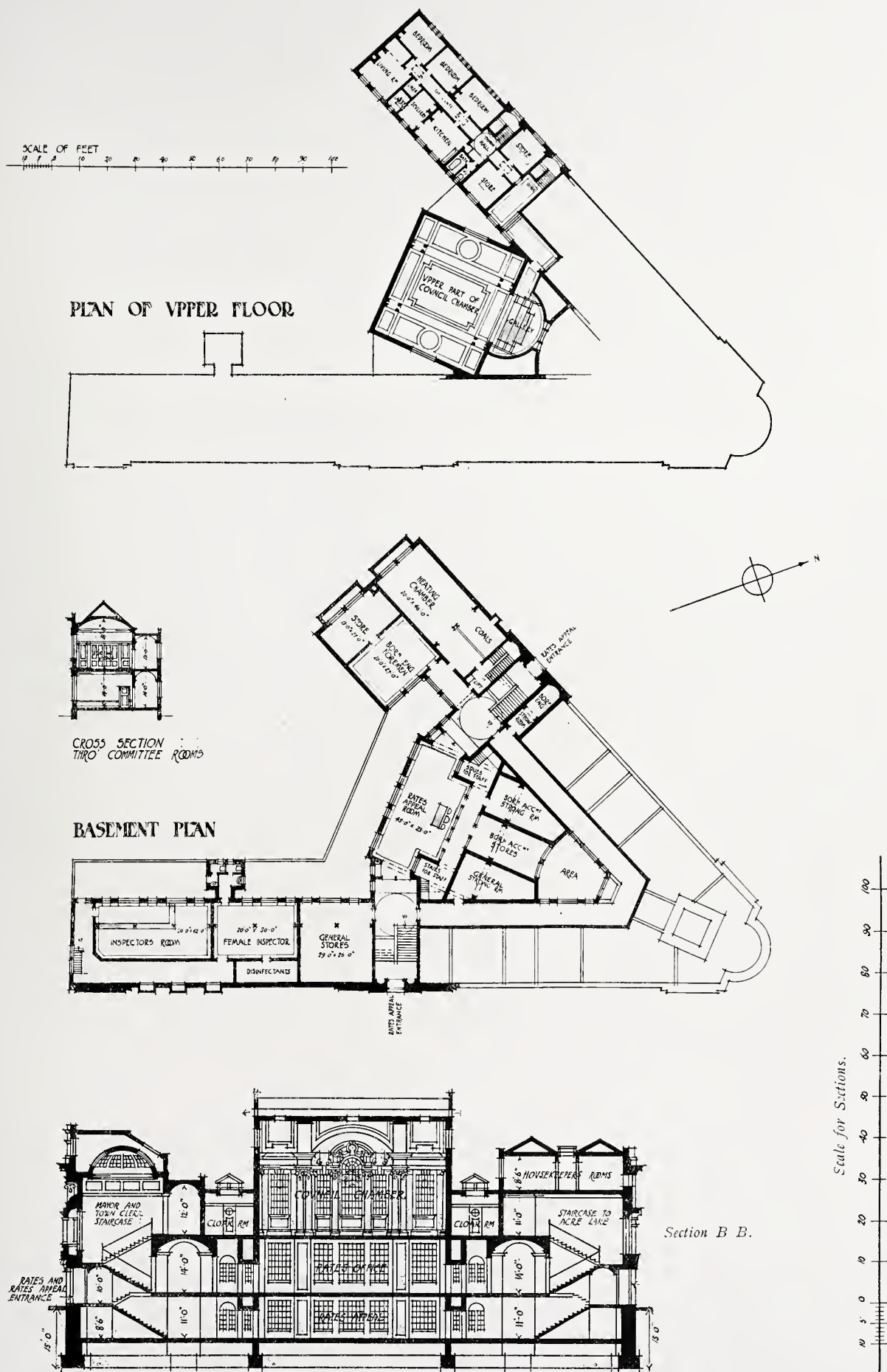
FIRST FLOOR PLAN

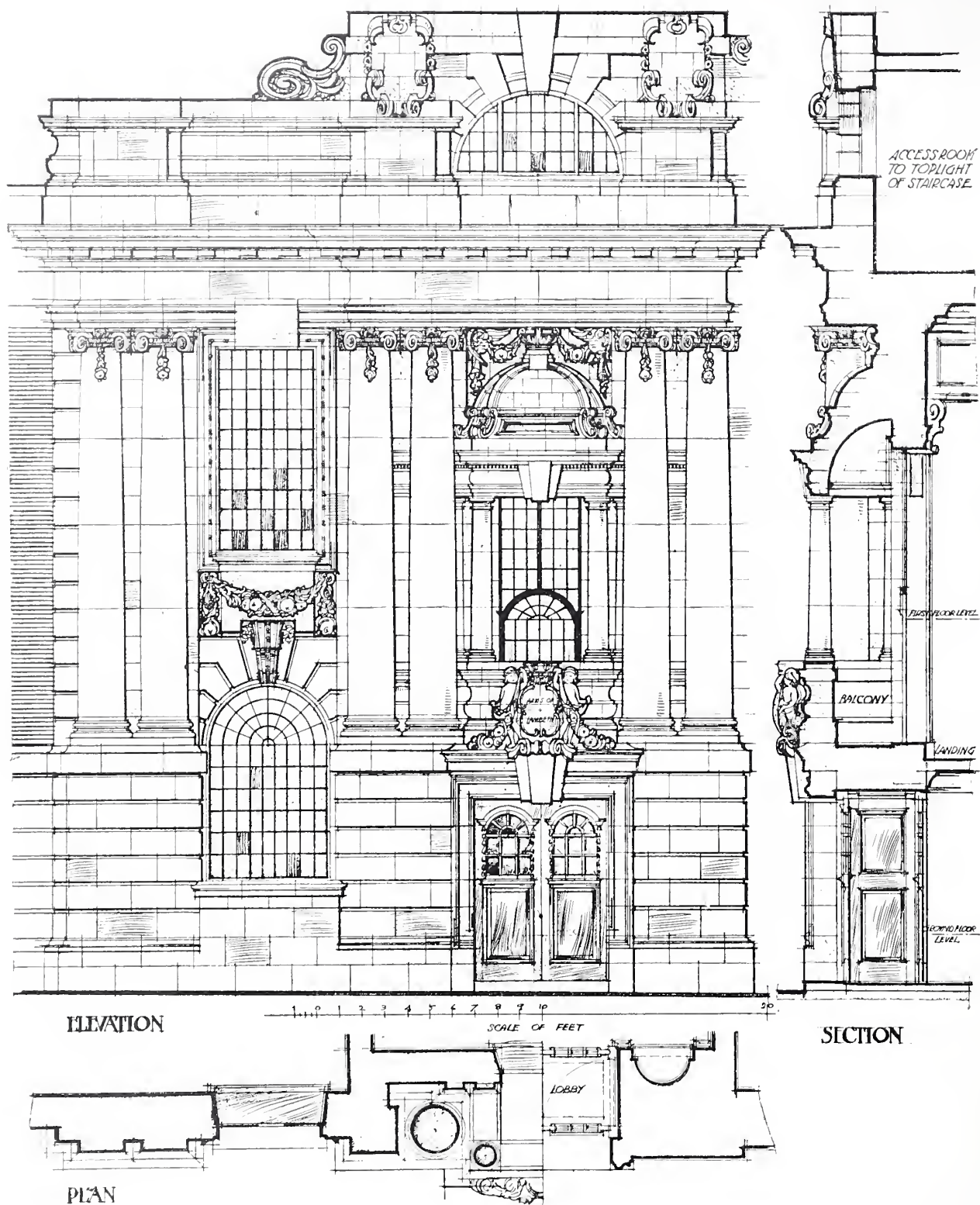


GROUND FLOOR PLAN



Section
A A.





LAMBETH MUNICIPAL BUILDINGS COMPETITION.
 DETAIL OF ACCEPTED DESIGN. HALL AND WARWICK, ARCHITECTS.

A Sketch of Irish Ecclesiastical Architecture.

II.—EARLY IRISH CHURCHES.

IN the last paper we saw (1) that the Irish constructed buildings of stone without mortar in very early times; (2) that they must, from about 600 A.D. at all events, have known of the more finished kind of building, founded on Greek and Roman architecture, which was practised elsewhere; but (3) that building in wood was the usual and national custom among the Irish then and for some centuries afterwards. The question which next arises is this: When did they actually begin to use this acquired knowledge by building stone churches of a more finished kind?

There are, of course, many such Irish churches whose style (and particularly the size of the stones used in their construction) seems to indicate great antiquity; a very early date indeed—such as the fifth century—is in consequence often attributed to them. Moreover it is well known that the early and native way of naming churches in Ireland and Scotland was not after some saint or object of worship more or less arbitrarily selected, but after the founders—such names, for instance, as *Teampull Muire* (Mary's Church), *Teampull na Trinoite* (Trinity Church) at Glendalough show foreign influence, they are non-existent in the earlier records, while *Teampull Chaimhghin* (Kevin's Church), and *Teampull Kieran*, *Teampull Conor* at Clonmacnoise, each called after its founder, whether cleric or layman, have names more in accordance with early Irish practice. This being the fact, it has often been assumed that the present buildings must (unless their character makes this obviously impossible) date back to the times of the men whose names they bear—that, for instance, St. Molaise, a saint of the sixth century, built *Teampull Molaise* on Inismurray; that the older part of *Kill Enda* (not, of course, its Gothic doorway) on the Aran Islands dates from before 540 A.D., when St. Enda died.

But in Ireland as well as in England it is necessary to bear in mind “that the date of the foundation only proves that there is nothing *earlier* than that date, and says nothing as to the date of the existing fabric, which may have been rebuilt half-a-dozen times.” Or, as Ledwich remarked more than a century ago, “hardly one of our ecclesiastical buildings are² in their primitive state; for besides the injuries superinduced by time, the caprice of fashion adapted them to the taste of the times.” These are obvious common-sense principles. And, while the marks of such re-

building are often visible in these churches—as in the very indisputable instance just mentioned—there is no reason why even the oldest part now existing in a church should not itself be a rebuilding of an earlier stone church, or of a wooden one. But, as we all know, there is a natural disposition in the human mind to exaggerate the antiquity of buildings as well as of institutions; we are not free from this in England, and in Ireland it is very marked. In the sister island the tendency was greatly strengthened by the work of Dr. George Petrie, *The Ecclesiastical Architecture of Ireland*, published in 1845, which did so much to draw proper attention to Irish architecture, and in particular to dispel the mystery and the foolish and unfounded speculations which had gathered about the Round Towers. In dealing with these he is at his best, arguing mainly from ascertained facts; though here too the dates first assigned by him have had to be revised. But in his treatment of the churches which have a very antique appearance, though he is invariably ingenious, he is not equally convincing. He is indeed thoroughly successful in showing that stone churches (doubtless built with mortar) existed in the ninth and even towards the end of the eighth century; but the arguments by which he tries to connect these with earlier times, and also to prove that they are represented without very material difference by churches now existing, are rather plausible than either sound or cogent. The authorities which he quotes are often very far indeed from being contemporary; to take an extreme instance, few will now pay much regard to the mention of St. Patrick's stonemasons, with their names, in a poem of the eleventh century (p. 141). And there is not unfrequently a curious looseness in his arguments; in estimating the age of a certain church at Armagh he reasons thus: “that this church also, if not a foundation of Patrick's time, was of a date not long subsequent to it, may fairly be inferred from the early notice of its existence found in the ‘Annals of Ulster’”—this notice belongs to the year 915 (p. 158).³ As regards any particular old church still existing which he mentions, the argument generally is that, if there are grounds for believing that a church was founded there at a very early date, and if its present representative looks very ancient (having, for instance, what is called “Cyclopean” masonry), then the present church is the original one. The possibility (or probability) of its having been

² The sense conveyed is more correct than its expression.

³ There is a notice of stone churches (unnamed) at Armagh in 839, which Petrie quotes on p. 145.



TEAMPULL MOLAISF, INISMURRAY, SLIGO.



TEAMPULL BENIN, ARANMORE.

rebuilt without the fact being recorded is left out of the account, or denied. The fact is that Petrie was arguing against unfounded fancies—that the Irish built no stone churches before the twelfth century, or that they were taught building in stone by the Danes, and so on; in combating these he sometimes went too far in other directions. He did a great work as an enthusiastic pioneer in the study of Irish architecture, and it was perhaps more than could be expected that he should at once reach true conclusions on all points—as he himself recognised. But further, even apart from the considerations mentioned above, and if his authority were accepted as decisive, yet to quote his book as the last word on the subject (which is frequently done) is like taking St. Augustine's opinions without regard to his *Retractations*. For, though Dr. Petrie never adapted his book to his later opinions, there is, for all that, distinct documentary evidence of some modification in his views, which has been to a large extent ignored.

Among the *Archæological Essays*, by Sir James Young Simpson, is one upon a stone-roofed building, of Irish type, still existing on Inchcolm, an island in the Firth of Forth; this paper was written in 1857. The author sent it to Dr. Petrie, and afterwards printed it with the annotations which he made. Thus (in a note on page 106), after stating that the cells or oratories were always regarded by the Irish as relics of the holy men who founded them, Dr. Petrie proceeds to say:—

And to this pious feeling we may ascribe the singular preservation to our own times of so many of such buildings—though, indeed, in many instances, they may only retain the general form, or a portion of the walls, of the original structure, owing to the injuries inflicted by time, or, as more frequently, by foreign violence. Thus in the great Aran of the *Tiglach Enda*, or “House of Enda,” a portion only—the east end—is of the Saint's time, the rest is some centuries later; and of St. Ciarn's oratory at Clonmacnoise, called in the *Irish Annals* “Temple Ciaron” or “Eaglais-beag,” and sometimes “Templebeg” or “The Little Church,” though the original form was carefully preserved, there was, when I first examined it, more than forty years ago, apparently no portion of its masonry that was not obviously of much later times—in parts even as late as the seventeenth century. Our annalists record the names of Airchinneachs⁴ of this oratory from 893 to 1097.

There is, so far as I can discover, no description (such, for instance, as that which we have of parts of Canterbury Cathedral) or other documentary evidence which unmistakably marks out any church or oratory now existing, or a portion of it, as of any very early date—the mention may be of their predecessors. And, though no doubt the general character of the stone-work would be a much surer guide than any details, which might well be added or altered in ‘restoration,’ the study of early Irish masonry forms by no means an exact science. Thus in the essay (by Miss

Stokes) appended to Lord Dunraven's *Notes on Irish Architecture*, in the part referring to Irish Romanesque, we are told (Vol. II., pp. 193–195) that—

There is a great variety in the appearance of the masonry in these churches, some presenting a much more massive or antique character than others. It must not therefore be concluded that they are older; for much depends on the nature and durability of the stone of which they are built, which, except in the case of the Saints' Church in Lough Corrib, is always the stone found in the neighbouring district. Sandstone is the material most commonly used. . . . Again, the primitive character of the masonry of Rahen small Church is perhaps deceptive, for this church is built in a district where there is no sandstone at hand, but where limestone is the rock which abounds, and the walls are formed of huge boulders and rubble cemented with ordinary mortar. In some instances there is a combination of rough rubble masonry and ashlar work in the same building, and even in the same wall.

The church on Inismain, an island in Lough Mask, also has masonry apparently of very early character, but there is every reason to believe that the whole of this very interesting building is, like its chancel arch, not earlier than the last years of the twelfth century.

After this we shall not be surprised to see the opinion of Mr. Brash, a practical architect (given in his work on *The Ecclesiastical Architecture of Ireland*, pp. 152, 153), that—

The early church masonry of Ireland cannot be classified by dates, as we find examples reputed to be of the sixth and seventh centuries as well executed as those of the eleventh or twelfth. From a personal examination of a great number of our primitive churches, it would appear that the differences in the masonry arose from the nature of the materials used, as well as from the local skill of the workmen, rather than from the prevalence of any particular manner or fashion in masonry.

Of course it is possible, from the particular circumstances of the case combined with the character of the masonry, to identify portions of certain churches (for instance, of the Cathedrals at Ardmore and Ardfert) as belonging to an earlier stone building; but all that this proves is—in the cases referred to—that they are older than some date in the twelfth century; it cannot give us the exact period of their erection.

It may be thought that the progress in the use of mortar would form a more certain guide, proceeding from its first unskilful employment (in place of the dry-stone construction before described) to perfection. And on this point the essay appended to Lord Dunraven's work before referred to (Vol. II., p. 144) says:—

The cement of the earliest builders on the sea-coast often largely contained shells and sea-sand, while inland a compound of mud and gravel was used. In many cases the walls appear to have been first dry-built, and then this composition was poured in a liquid state to filtrate through from the top; later on the wall was well built with two faces and a rubble

⁴ Stewards, who managed its lands.



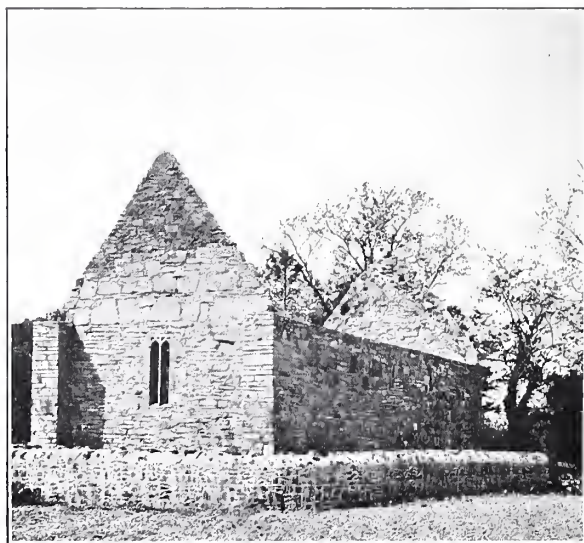
SMALLER CHURCH, RAHAN, NEAR TULLAMORE.



INISMALIN, LOUGH MASK. SQUARE-HEADED DOORWAY
IN NORTH WALL AND MASONRY.



TOMGRANEY CHURCH, COUNTY CLARE; SHOWING
"ANTAE" AND WEST DOORWAY.



CLONKEEN CHURCH, COUNTY LIMERICK.

(For discussion of masonry, see article.)



TOMGRANEY CHURCH, COUNTY CLARE.
WESTERN END OF SOUTH SIDE.



ST. CAIMIN'S CHURCH, INISCEALTRA.
NORTH SIDE AND ROUND TOWER.

core grouted in a similar manner : while in the time of Cormac O'Cillen [about 950] we have the stones well bedded in good mortar.

So too Lord Dunraven says (Vol. I., p. 47) that in *Teampull Molaise*, which he thinks to be the oldest of the churches on Inismurray,

very little cement was used ; it was a sort of mixture of shell grouting and clay. I think it was merely grouted in the centre of the wall.

Thus the walls of the very ancient church of Killelton, near Tralee, have very little mortar except towards their centre. And the church known as *Labba* (or *Leaba*) *Molaga* has little mortar at the east, though more at the west end, and what there is is very largely sand.

But though the character of the mortar and the way of using it may give a general indication of the age of a building, yet it is necessary to bear in mind that much may have happened to change or blur the evidence in something like a thousand years. The extent to which even fairly good mortar can be lost is very plain, for instance, by comparison of the western face of the Round Tower at Kildare with its eastern side,⁵ and mere clay would of course be particularly liable to perish. Moreover it is unlikely that any of these early buildings should not have been more or less repaired—in many cases they obviously have been. The natural need for repair, “owing to the injuries inflicted by time,” is of course considerable, and this necessity was enormously increased by “foreign”—and unfortunately not always foreign—“violence.” To give some idea of what amount of repair, or rebuilding, must have been necessary from this cause, it is recorded that the churches of Armagh were attacked by the Danes three times in the year 832, and in 839, 850, 873, 876, 890, 893, 895, 898, 914, 919, 926, 931, 943, 995, 1012, 1016; that those at Glendalough suffered more or less injury from the same enemies in 830, 833, 835, 886, 977, 982, 984, 985, 1012, 1016, and, apparently from accidental fires, in 1061, 1071, 1084, 1095, and 1163—some few of these entries may be duplicate, referring to the same event, but the general view given by them is correct; it is amply confirmed. So too in 1127 the northern Irish invaded Meath. Trim was burnt “with its churches; and a great number suffered martyrdom in them.” This is not a solitary instance. And it is most improbable that those who repaired or rebuilt a church should have respected or intentionally reproduced the less perfect mode of building. Moreover any such gradual progress in the use of mortar becomes somewhat less probable when we remember that there were, even before the earliest date ever

assigned to cemented stonework in Ireland, buildings already existing in Britain and on the Continent in which the use of mortar was fully developed. And it is likely that the varieties in this use to be found in Ireland are—in some cases at all events—like those in Irish masonry, due to “the local skill of the workmen,” and not to differences of date.

Of course it is possible that there were a good number of churches built with stone and mortar at a quite early date in Ireland, even if we cannot show that any now existing are, in their present shape, anything but ‘restorations.’ Still, proof of this, apart from such evidence as can be got from the buildings themselves, is, as has been already said, singularly deficient. The first definite authentic mention of a stone church that I know belongs to the year 788, when a man was killed in a fight at Armagh “in the door of the stone oratory.” In 839 Armagh was burnt with its oratories and stone church. In 920 “the stone church at *Cenannas* [Kells] was broken by the Gentiles [Danes], and great numbers were martyred there,” and the stone church of Dulane was burned on the same day. In 996 the roof of the great stone church of Armagh was burned by lightning. It is unnecessary to add later instances. Doubtless the ravages of the Danes (who came not as mere indifferent heathen plunderers, but with a special hatred for Christianity and everything connected with it) tended greatly to encourage the building of churches in stone. These might admit of some defence; and though their roofs might be burnt, they could not easily be wholly destroyed, like a wooden church.

And yet there are certain marks of continuity which seem to make it probable that in some cases building in stone, with the addition of mortar, went on without any complete break from such structures as the oratories of Kilmalkedar and Gallarus, whatever the precise date of these may be. The later square-headed doorways with inclined sides, for instance, and the stone roofs of an improved form seem to be immediately derived from these and from still earlier architectural efforts. But the larger the number and the greater the importance of the buildings that are attributed to a very early date the less becomes the probability of such classification in face of the evidence that the national custom of Ireland in early times was to build in wood. The oldest existing church to which a date can be assigned with something like certainty is that at Tomgraney. In the *Chronicon Scotorum* we read that in the year 964 “Cormac Ua Cillin . . . by whom the great church of Tuaim Greine and its *Cloigtech* [Belfry

⁵ Since wind and wet mostly come from the west. This suggests that the mortar has been renewed at *Labba Molaga* at the end where this was most needed.



LABBA MOLAGA, COUNTY CORK. WEST DOORWAY.

or Round Tower] were constructed, a wise man and old and a Bishop, fell asleep in Christ." The eastern part of the church shows a double rebuilding—the first certainly in the twelfth century—but the western part belongs, in all reasonable probability (so far as its main features are concerned), to the middle of the tenth century, in accordance with the notice quoted above. The Round Tower has utterly vanished.

So much for the difficult question as to the precise date of the early Irish churches, obscured as it is by the scarcity or want of sure starting-points for argument by analogy, by the marked conservatism of Irish architecture, as well as by a certain fondness for copying classical models which comes



RATASS, NEAR TRALEE. WEST DOORWAY.

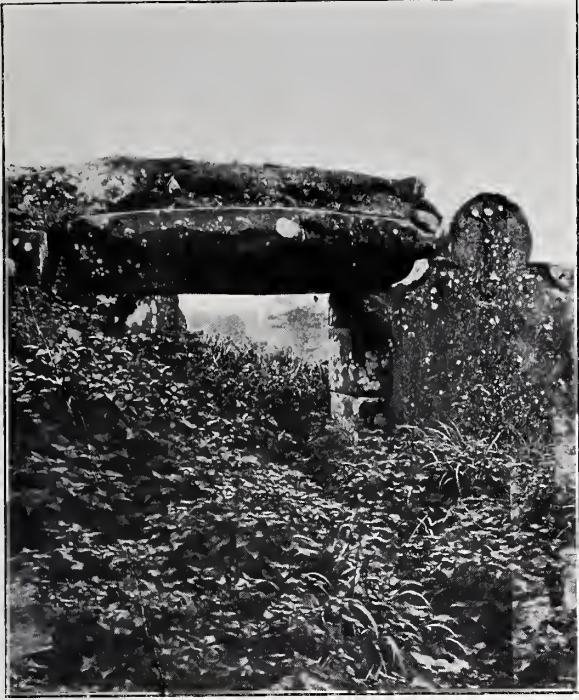
out clearly and may perhaps be accounted for by the frequent pilgrimages of the Irish to Rome; in Italy, as well as in Southern France, classical remains were of course far more numerous nine hundred or a thousand years ago than they now are. We may now shortly describe the general features of these ancient churches.

The plan of such churches is a rectangle, without aisles. They are of small size: the nave of the Cathedral at Glendalough (forming the original church) measures 48 ft. 6 in. by 30 ft.; but few of these buildings reach such dimensions—the internal measurement of the oratory of *Labba Molaga* is only 10 ft. by 7 ft. 2 in. The walls often stand upon a plinth (as at Gallarus). They



KILLINEY CHURCH, NEAR DUBLIN. WEST DOORWAY.

KILLINEY CHURCH, NEAR DUBLIN.
INSIDE OF WEST DOORWAY.



DULANE CHURCH, NEAR KEILS, COUNTY MEATH.
WEST DOORWAY FROM INSIDE.



CHURCH AND ROUND TOWER, DISERT OENGUS,
NEAR CROOM.

have no side-buttresses, but at the east and west ends there are often what seem like prolongations of the walls for one or two feet beyond the building, as, for instance, in St. Caimin's Church on Iniscealtra or Holy Island, Lough Derg; at Ratass and *Labba Molaga*, in 'St. Declan's House' at Ardmore, and elsewhere. These are usually stopped just below the gable, and bear a strong resemblance to the *antae* of Roman, and still more of Greek temples, the resemblance to a classical model being carried further at the west end when, as is nearly always the case, there is a doorway there with inclined jambs. The door-

ways are a most striking feature of these early Irish churches. That at *Labba Molaga* is formed by two upright stones, which still remain standing, though the lintel was most unfortunately broken in two in 1903 by a tree falling on it and now lies in the doorway. This form seems to be a direct descendant of certain doorways in the dry-built cells before mentioned; and the entrance to the enclosure of *Cladh an Disert* on Iona—which has now also lost its lintel—is of similar but rougher construction. In general however the jamb stones are laid horizontally, though there is occasional 'long-and-short' work



SOUTH WALL OF ST. CAIMIN'S CHURCH, INISCEALTRA,
SHOWING ANCIENT SQUARE-HEADED WINDOW.



CHURCH ON FRIARS' ISLAND, KILLALOE,
SHOWING EAST WINDOW.



ST. MARY'S CHURCH, GLENDALOUGH.

in them. There is often a band or bands (an 'architrave') cut on the stones and framing the door on the outside, as at Ratass; at Killiney it is on the inside and above the doorway only; at Dulane "an architrave consisting of two incised parallel lines runs down the side of the jamb near the outer angle." At St. Mary's Church, Glendalough, there is also a cross carved on the under side of the lintel, and the same is the case at Killiney; at Fore, near Lough Lene, the cross stands over the entrance, much as upon the Round Tower of Antrim. The doorway is nearly always at the west end, but at Disert Oengus, near Croom, it is in the south wall. Although, as has been said above, its form appears to be derived from native Irish examples, its simple decoration certainly seems to be influenced by the classical treatment of doorways similarly shaped. The stones which compose it, and especially the lintel, are very frequently most impressive from their size, as at Ratass, and Dulane, and Tomgraney.

Whatever may be the precise date of *Labba Molaga*, it is certainly a building of very early form, and it is interesting to notice that its doorway is not the only link between it and the branch establishment of the Irish Church at Iona. Its pilasters terminating the side walls

have been already mentioned; it also has on its right-hand side a gravestone which was raised a little above the ground. This is supposed to be, and probably is, the 'bed' or tomb of St. Molaga, who died at some time later than 665 A.D., though of course, as is shown above, this does not necessarily prove that the building, as it exists at present, is of the seventh century. Altogether it and 'St. Declan's House' bear a very striking resemblance to the little church or oratory abutting on the west end of the Cloisters at Iona, and materially support the claims of that building to contain on its south side the real grave of St. Columba, or at least of what was long ago reputed to be so.⁶ *Labba Molaga* is surrounded by a very perfect 'cashel,' which also has within it the remains of other later ecclesiastical buildings. Sixty years ago the oratory was comparatively perfect. Inside it has been placed a cross of very ancient appearance.

These early churches sometimes had one window only—in the east end. Many of the windows are round-headed, the arch being cut out of a single stone. The east window at Killelton had a triangular head, and this form is not very uncommon, nor are windows with flat heads, as at St. Caimin's, Iniscealtra. At Tomgraney the windows in the older part of the church are

⁶ See *The Architectural Review*, July 1903, pp. 9-11.

rectangular, and the same form, with the addition of a moulding, is retained in the later part of the building on the outside. Here the sides are straight, but they nearly always incline, as in the doorways. The opening of the windows is generally, but not always, considerably splayed on the inside only; in some cases—such as the window just mentioned at St. Caimin's and the east window of the church on Friars' Island, near Killaloe—several little steps form the lower part of the splay. There is no sign of the use of glass in any of the early churches that I have seen; but this might of course be inserted in a wooden frame, though probably there was none.

The roofs were usually of timber, sometimes covered with wooden shingles; but some were of stone. At first (as it appears) these were built without any true arch, the stones being merely carried through, and dressed to the pitch of the roof inside and outside. This sort of construction is to be seen in the remains of *Tobar na Dru*, a Holy Well near Freshford (which was crowned by the Irish gable-ornament already mentioned),

but the outside of this is much ruined. A far more perfect example is supplied by the Chancel of the church near Killaloe just mentioned, which may have formed the whole of the original oratory, the Nave and Chancel Arch having been added later. Here the roof is triangular inside as well as outside; it is of great thickness and enormous weight; in it is contained a little chamber or cupboard 2 ft. long by 15 in. broad, with a small opening to it below, and (now at all events) a vent on the outside as well. This may have been used for securing valuable property—such as church plate—but it would also lighten the roof, and may be considered as a sort of step to the perfect construction of the double stone roof, which involves the use of the arch—the description of this must be reserved for the next paper.

ARTHUR C. CHAMPNEYS.

PHOTOGRAPHS.—From Langfrier, Ltd.: Disert Oengus, St. Caimin's, Clonkeen, Rahan. From Lawrence, Dublin: St. Mary's, Glendalough. From Welch, Belfast: Teampull Molaise, Teampull Benin. The rest are taken by the author and prepared by Messrs. Seamen, Ilkeston.

Current Architecture.

"QUEEN ALEXANDRA'S COURT," WIMBLEDON.—In the note published last month concerning these buildings it was stated that Mr. C. E. Lancaster Parkinson had "undertaken the direction and supervision of the work," the design being supplied by Messrs. Ernest George and Yeates as honorary architects. As the statement might convey the impression that Mr. Parkinson acted merely as clerk of the works, it should be stated that Messrs. Ernest George and Yeates and Mr. C. E. Lancaster Parkinson were the joint architects for the buildings.

LONDON AND COUNTY BANK, CASTLE SQUARE, BRIGHTON.—The existing premises having become too small for the volume of business, adjoining property was acquired and the whole adapted or reconstructed. This was a work of some difficulty, as the business of the bank had to be carried on during the period of rebuilding. The basement is occupied by strong rooms, heating chamber, lavatories, etc. The first and second floors are planned for offices, and the top floor as a residential flat. The stone used for the exterior is for the ground floor red and white Mansfield, and above that Ancaster from the

Lindley Quarries. The public space, lobby, passage, and office entrance-hall are paved with black and white marble, executed by Mr. M. Van Straaten of London. The columns, cornice, coffered barrel-vault, dado, etc., of this hall are of black and white cement. The bank fittings, screens, doors, and window finishings throughout are of teak with ebonised mahogany mouldings, glazing bars, etc., and were made from the architect's drawings by the general contractors, Messrs. Rowland Bros. of Horsham. The counter front is inlaid with ebonised mahogany and hollywood. The stone-carving and most of the modelled plaster is the work of Mr. Michael Murphy of London, from the architect's sketches. The marble work (Greek Cipollino and yellow statuary) of the chimneypiece in public space was done by Messrs. Farmer & Brindley, and the copper grate by Bratt, Colbran & Co., who also supplied most of the other grates. The book rails, electric light standards, lettering, nameplates, etc., were executed by Mr. S. Beal of London from the architect's designs. The electric lighting is by Page & Miles of Brighton, and the electric lift by the Otis Elevator Co. Mr. Godfrey Pinkerton was the architect.



Photo: E. Dochree

LONDON AND COUNTY BANK, CASTLE SQUARE, BRIGHTON.
GODFREY PINKERTON, ARCHITECT.



Photo: E. Dockree.

LONDON AND COUNTY BANK, CASTLE SQUARE, BRIGHTON. INTERIOR OF BANKING ROOM.
GODFREY PINKERTON, ARCHITECT.



Photo: E. Dockree.

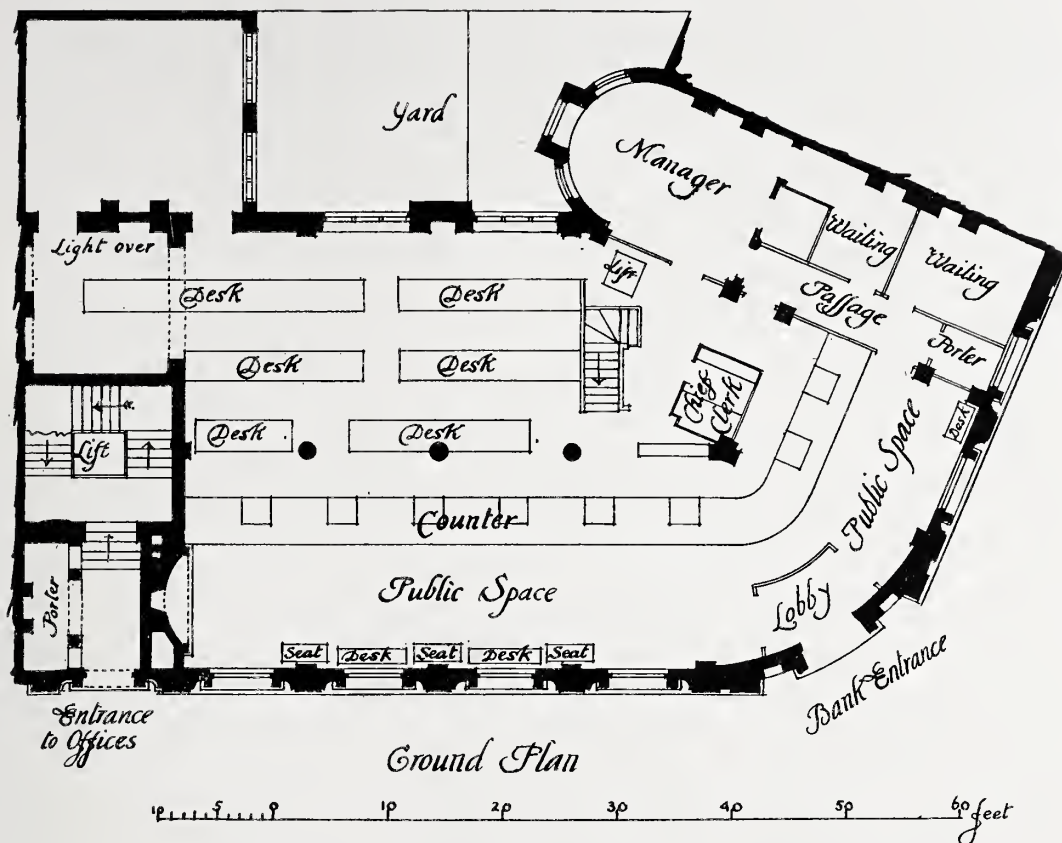
LONDON AND COUNTY BANK, CASTLE SQUARE, BRIGHTON.

CHIMNEYPiece IN PUBLIC SPACE.

GODFREY PINKERTON, ARCHITECT.

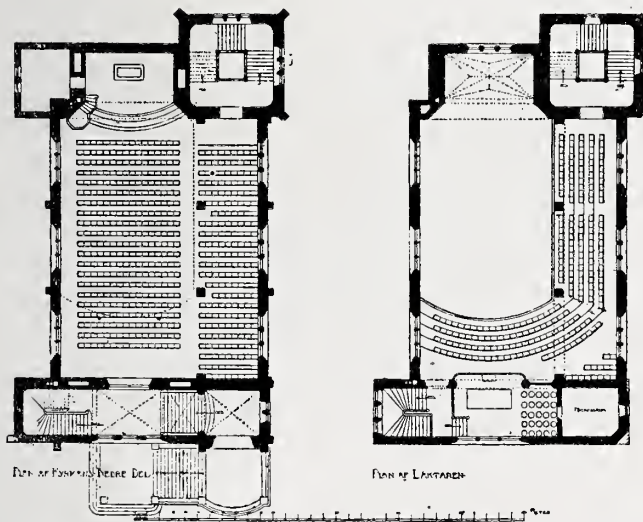
"HEADINGLEY," COBHAM, SURREY.—This house was designed by the late Mr. Francis W. Bedford for his own use, and is situated about $1\frac{1}{2}$ miles from Cobham on slightly rising ground commanding a charming view to the south-west, in which direction all the principal rooms face. The garden has been laid out on formal lines, and was also designed by Mr. Bedford and carried out by Mr. James May of Ashted, Surrey. The walls are brick, faced with cement rough-cast, and the roof is covered with hand-made tiles. All the oak posts and beams, of which there are many in the interior, are very old, having been removed from an old barn which was demolished in the

district some time ago. The floors on the ground level are all wood blocks laid on concrete, and the ceilings and friezes have been left rough in order to give a sanded appearance. Antique Dutch tiles have been used in the drawing-room fireplace, and the ingle-nook in the gallery has been carried out in old oak with stone jambs for the fireplace. The windows are all Yorkshire casements sliding on oak runners. Since Mr. Bedford's death, which occurred soon after the contract was signed, the remaining details have been designed, and the completion of the work supervised, by Mr. F. Radford Smith, who was formerly Mr. Francis W. Bedford's senior assistant. The builders were



LONDON AND COUNTY BANK, CASTLE SQUARE, BRIGHTON. PLAN.

GODFREY PINKERTON, ARCHITECT.



CHURCH OF ST. MATTHEW, STOCKHOLM, SWEDEN.

ERIC LALLERSTEDT, ARCHITECT.

Messrs. R. Jones & Sons, of Sutton, Surrey, who carried out the whole work, and the roof tiles were supplied by Mr. J. Mercer, of Ashford, Kent.

ST. PETER'S CHURCH, LOWESTOFT.—The additions to the church of St. Peter, Lowestoft,

shown in our illustrations, consist of chancel, with vestries and heating-chamber on the south side, and a morning chapel, with an organ-chamber above it, on the north side. The intention is to entirely rebuild the church when funds allow, the existing building, which dates from 1832, being inadequate and ill-built. The new structure is of local quiet-coloured red stock brick with dressed stonework of Casterton stone. The roof is covered with greenish-grey slates. The contractors were Messrs. Collins & Godfrey of Tewkesbury, and the architect Mr. E. P. Warren. The internal views show the reredos, which is the combined work of the architect, Mr. Anning Bell, and Mr. W. Dacres Adams. Mr. Anning Bell modelled in low relief and coloured the central panel of the Crucifixion, and the small panel below it, representing Christ walking upon the waters, St. Peter, and a ship containing the other apostles. Mr. W. Dacres Adams painted the panels in the wings, representing King David and St. Edmund, the latter typifying East Anglia. Both Mr. Bell's and Mr. Adams's panels contain a certain amount of gilding; the general treatment of the reredos frame is in green and gold. The frame, with its carved ornaments, was executed and erected by Mr. T. E. Jago, of Edward Street, Vauxhall Bridge

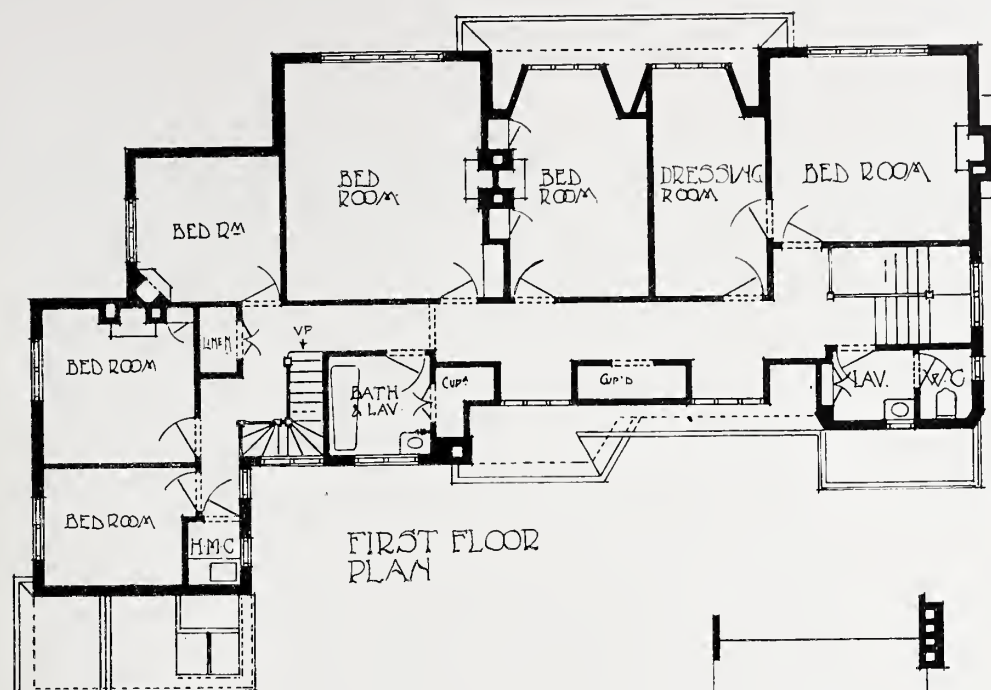


CHURCH OF ST. MATTHEW, STOCKHOLM, SWEDEN.

ERIC LALLERSTEDT, ARCHITECT.

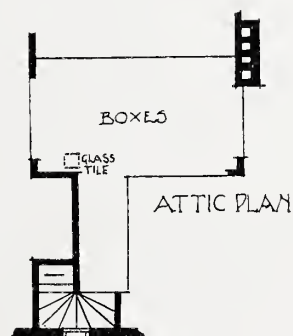
Road, London. The hangings were supplied by Mr. H. S. Ashwin of Stoke-on-Trent. Messrs. Collins & Godfrey carried out the oak altar table, altar rails, and stalls. The large east window above the reredos is filled with glass by Mr. Christopher Whall. This window, the reredos, and the stalls are the gifts of the Charlesworth family. The internal roof is a

barrel-vault in timber, and the portion for the new chancel is decorated in white with a simple ornamentation along the dividing ribs in red, green, and grey, etc. The intention is to extend a precisely similar roof over the nave, which is planned in one span, with low passage aisles carried by means of arches through the buttresses. The internal wall surfaces are plastered.

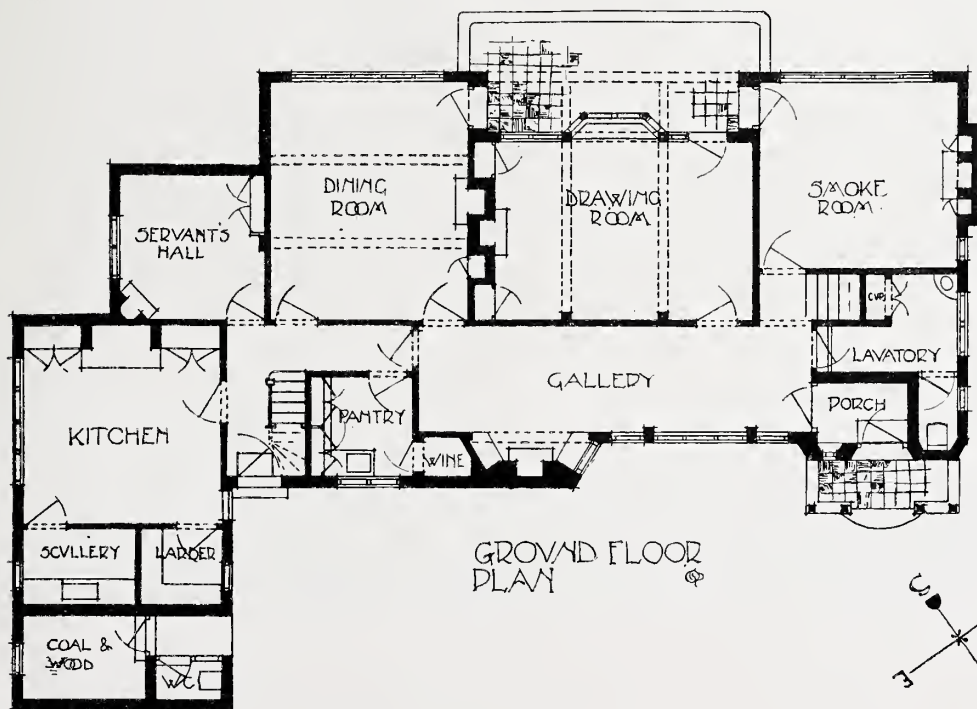


FIRST FLOOR
PLAN

"HEADINGLEY," COBHAM, SURREY.
THE LATE FRANCIS W. BEDFORD, ARCHITECT.
COMPLETED BY F. RADFORD SMITH.



ATTIC PLAN



GROUND FLOOR
PLAN

SCALE 0 5 10 20 30 40 50 FEET

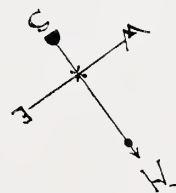




Photo: C. H. Pickard.

"HEADINGLEY," COBHAM, SURREY. THE LATE FRANCIS W. BEDFORD, ARCHITECT.
COMPLETED BY F. RADFORD SMITH.



Photo: C. H. Pickard.

"HEADINGLEY," COBHAM, SURREY. THE LATE FRANCIS W. BEDFORD, ARCHITECT.
COMPLETED BY F. RADFORD SMITH.



Photo: Bedford, Lemere and Co.

ADDITIONS TO "THE ISLET," MAIDENHEAD COURT. THE LODGE.
R. SELDEN WORNUM, ARCHITECT.



Photo: Bedford, Lemere and Co.

ADDITIONS TO "THE ISLET," MAIDENHEAD COURT. THE LAUNDRY.
R. SELDEN WORNUM, ARCHITECT.

*Photo: Bedford, Lemere and Co.*

ADDITIONS TO "THE ISLET," MAIDENHEAD COURT. THE WATER TOWER.

R. SELDEN WORNUM, ARCHITECT.

ADDITIONS TO "THE ISLET," MAIDENHEAD COURT.—These additions, consisting of a Lodge, Laundry, Water Tower, and Pump-room, etc., were added to a house called "The Islet," Maidenhead Court, from the designs of Mr. R. Selden Wornum. The water tower is built over the well, and has a pump and a large cistern in it.

The additions form a range of buildings on the Cookham Road. The contractor for the work was Mr. Cooper, of Maidenhead.

THE CHURCH OF ST. MATTHEW, STOCKHOLM, is a typical example of the new ecclesiastical work in Scandinavia.

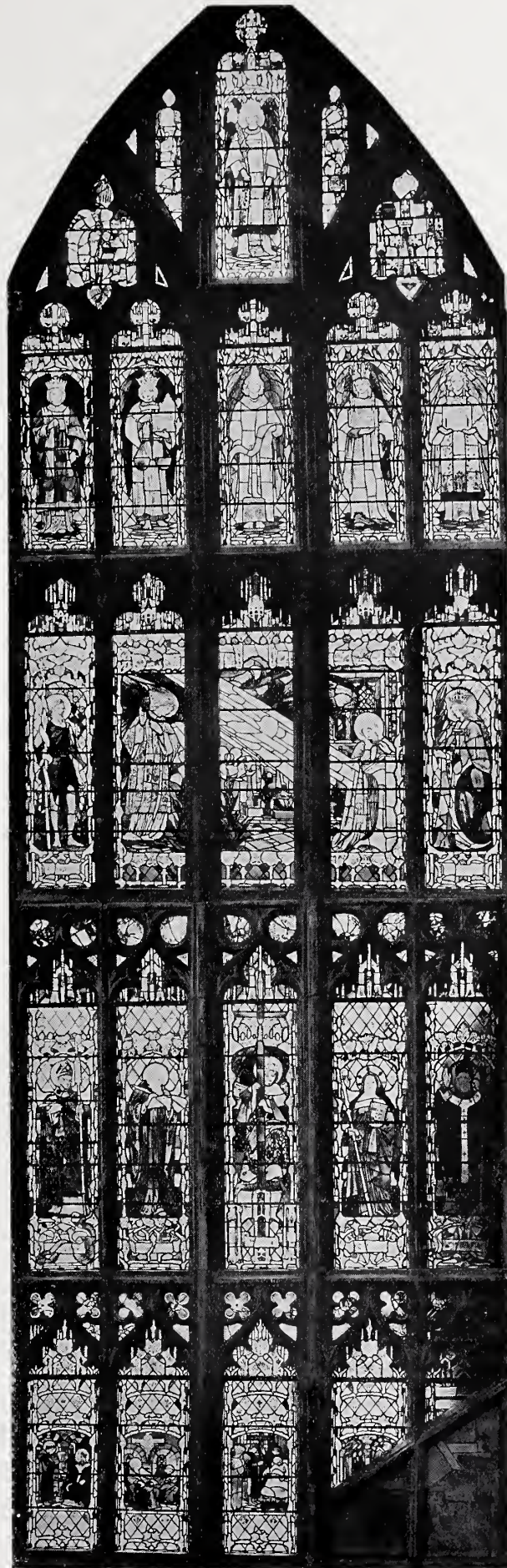
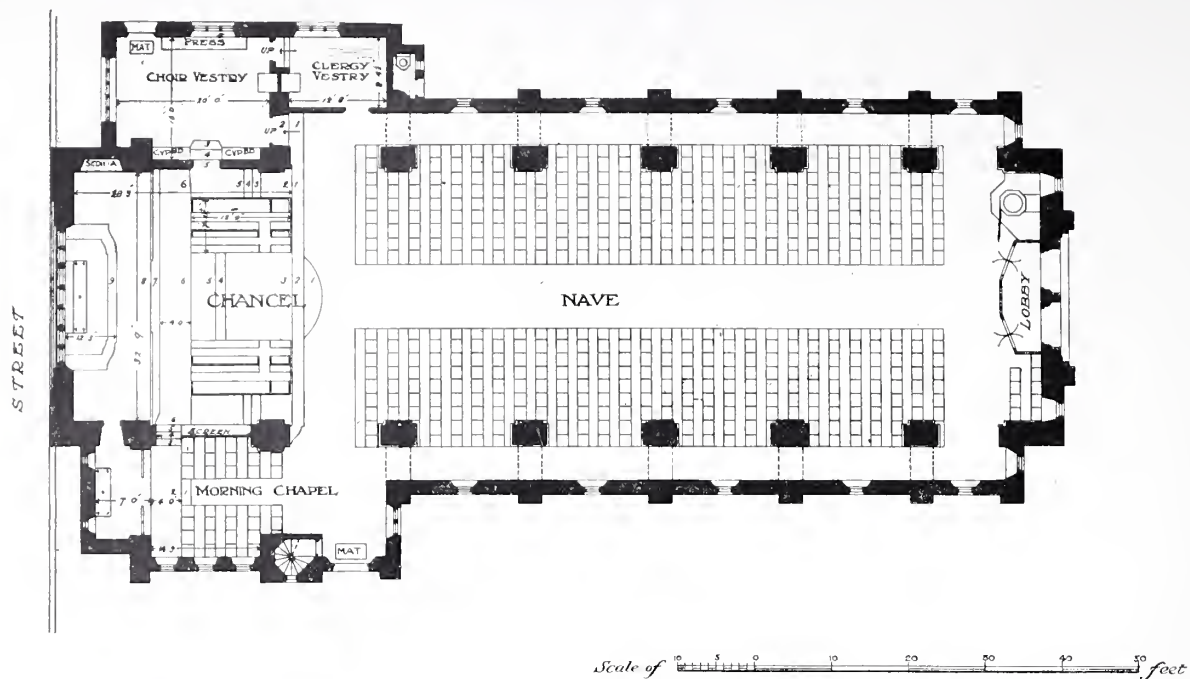
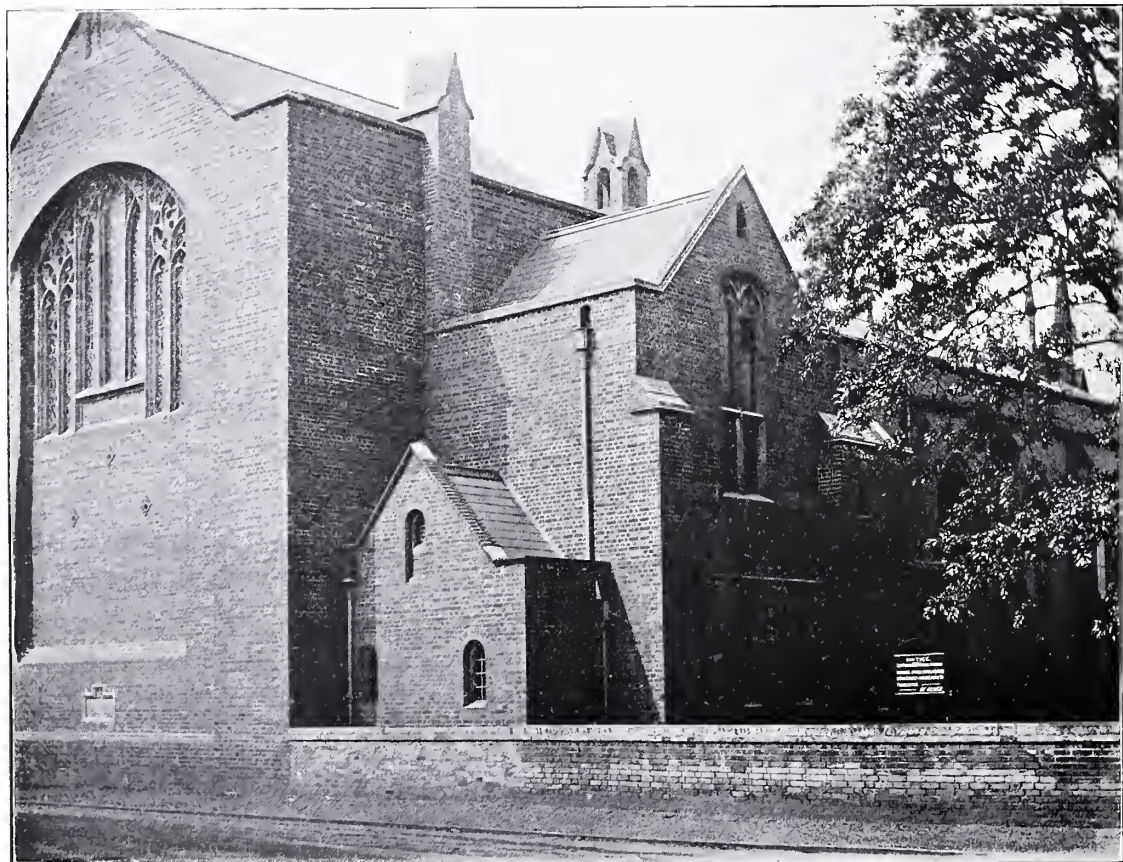


Photo: A. H. Pitcher

NEW WINDOW, GLOUCESTER CATHEDRAL.
CHRISTOPHER WHALL, DESIGNER.

*Plan.**General View.*

ST. PETER'S CHURCH, LOWESTOFT. NEW CHANCEL, VESTRIES, ETC.

E. P. WARREN, ARCHITECT.



Photo: H. Jenkins.

ST. PETER'S CHURCH, LOWESTOFT. INTERIOR OF CHANCEL.
E. P. WARREN, ARCHITECT. WINDOW BY CHRISTOPHER WHALL.

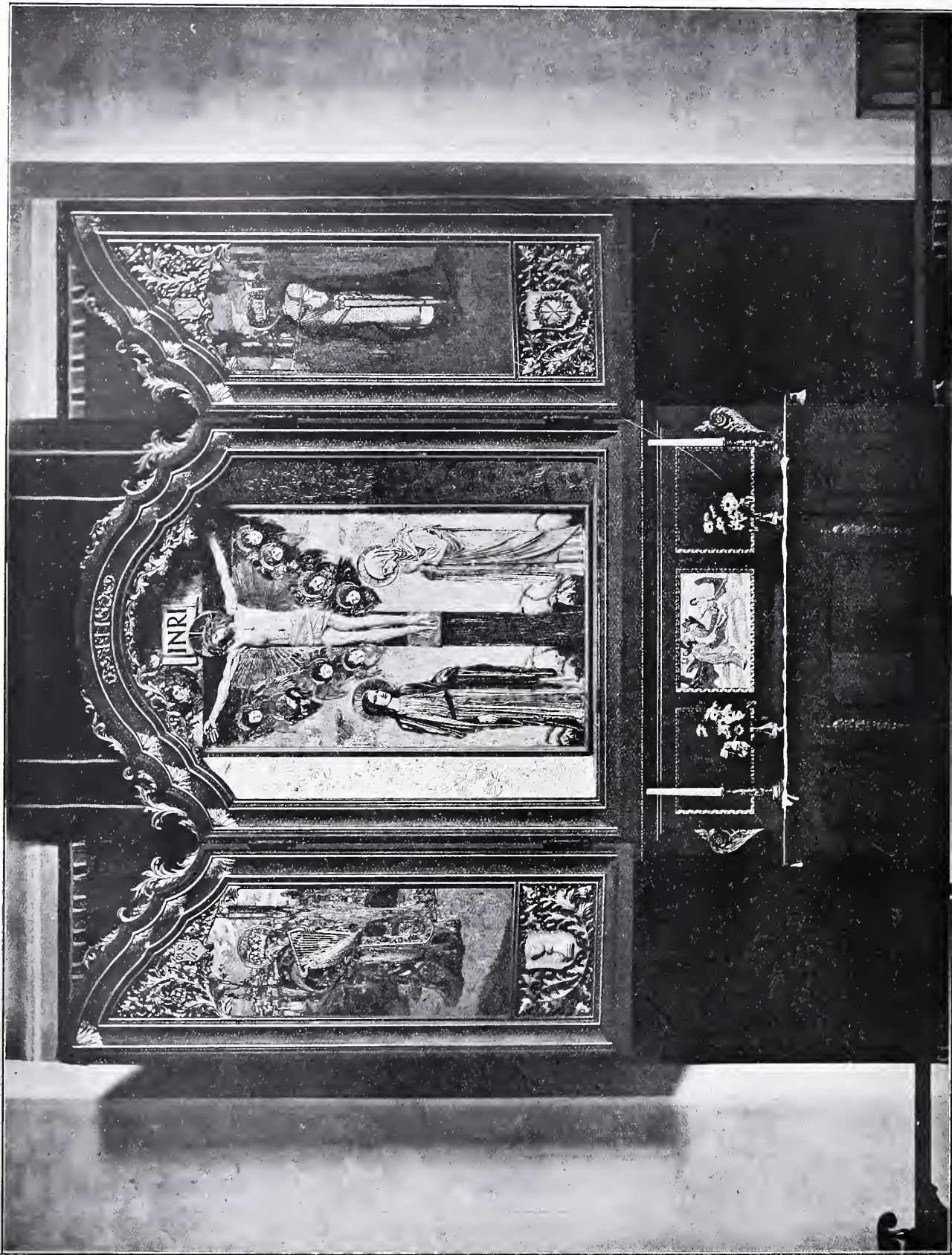


Photo : H. Jenkins.

ST. PETER'S CHURCH, LOWESTOFT. REREDOS. E. P. WARREN, ARCHITECT.
CENTRE AND LOWER PANELS BY R. ANNING BELL. TWO SIDE PANELS BY W. DACRES ADAMS.

THE ARCHITECTURAL
REVIEW, SEPTEMBER,
1905, VOLUME XVIII.
NO. 106.

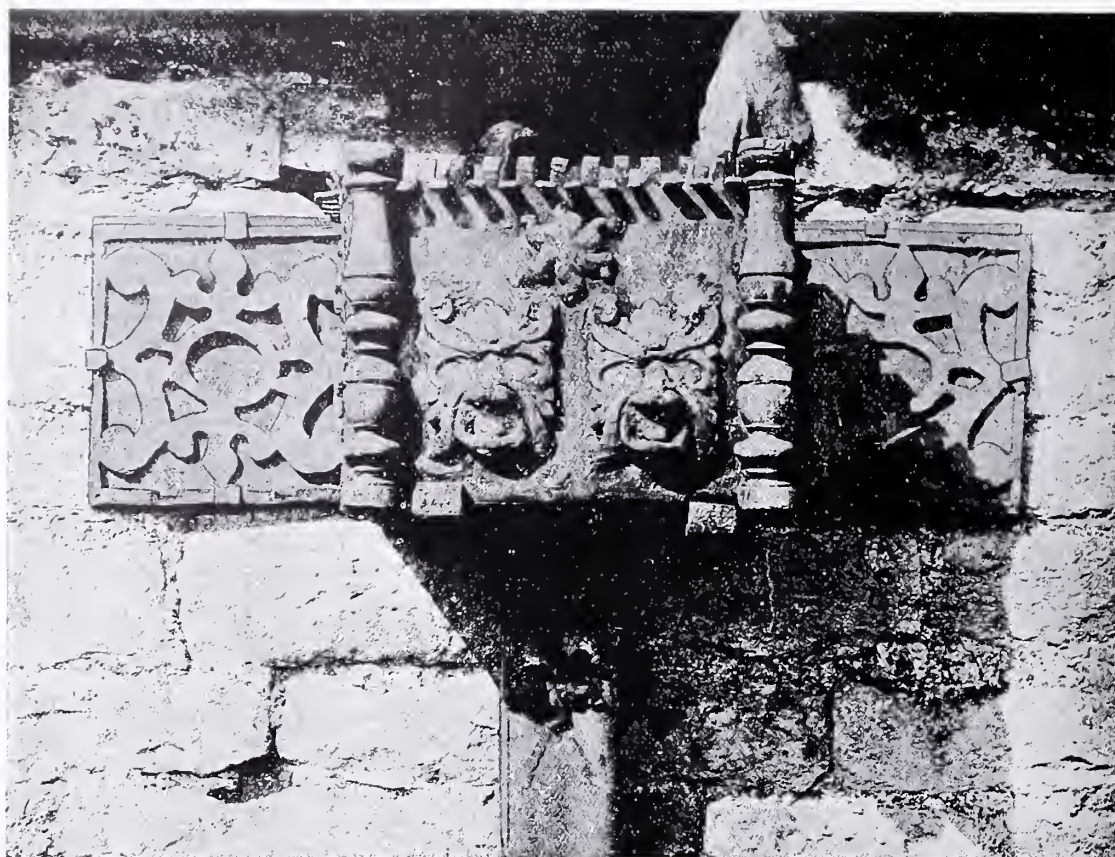


FIG. 16.—HADDON HALL.

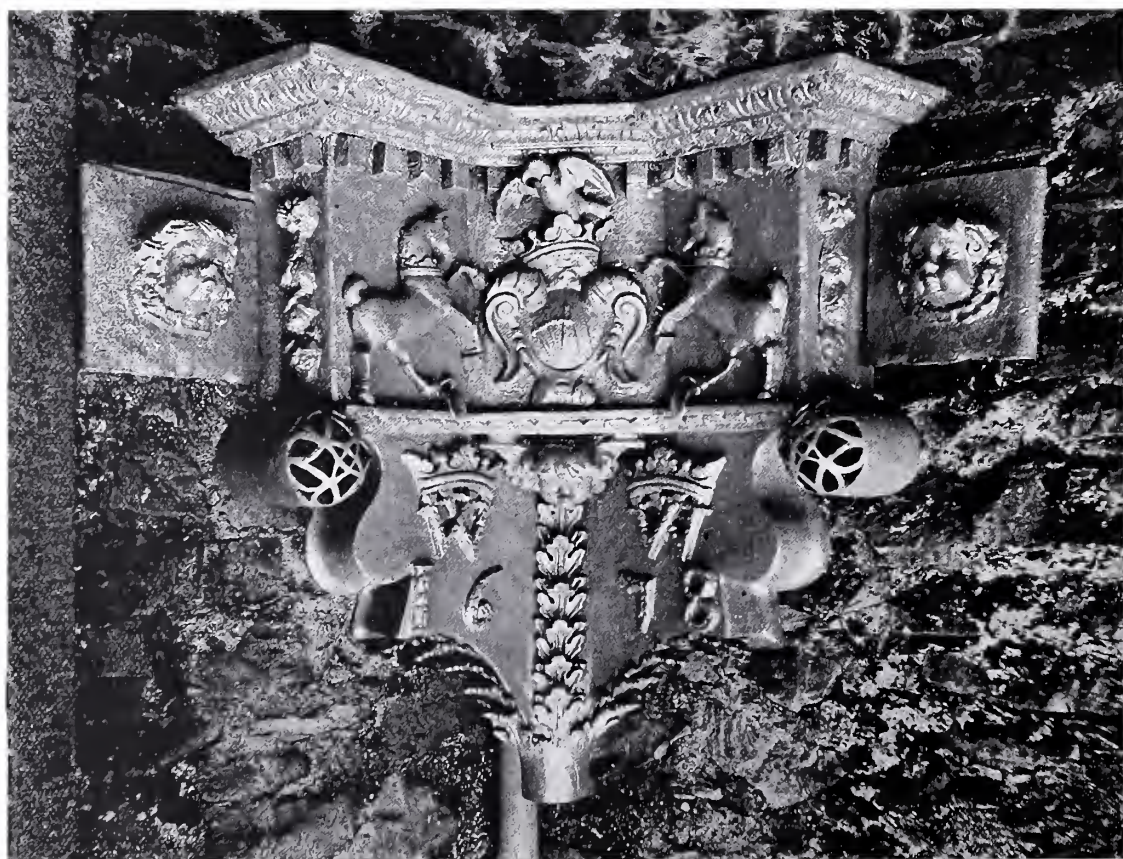


FIG. 17.—BOLTON HALL.

English Lead Pipe-Heads.—II.

FOR the sake of convenience I have divided the history of lead rain-water pipe heads into two periods. The article of last month dealt with the earlier work, and the latest of the examples illustrated, that on Leighton Bromswold Church, is dated 1632.

This division into two periods is naturally much too arbitrary to do more than suggest broadly that in this kind of leadwork there were two main influences—the Mediæval and the Renaissance. Owing to the sporadic working of the new ideas, and the slowness with which they penetrated to the more remote parts of England, there is naturally a great overlapping of styles. A marked instance of this is found at Kendal, Westmoreland, where a head of 1711 much resembles in general treatment the Guildford heads of 1627. The applied ornaments are escalloped shells and fleur-de-lys, and there is a parapet of delicate brattished work which is astonishing for 1711. At this date the finish at the top of pipe-heads was almost invariably a heavy and not very interesting cornice. Kendal was remote, and the old manner consequently lingered there.

Old Palace Yard, Coventry, has a remarkable series of leadwork. There is one gutter of about 1580. Seven heads of 1656 and thereabouts receive the discharge from a fine shell-pattern parapet gutter, with dates, initials, and coats of arms interspersed (Fig. 19). Most of the heads have classical cornices of great projection with dentils, but much gothic detail lingers. The Coventry craftsman evidently did not desire to deliver his work from the power of the dog. One head has a running hound, and a pipe-socket has two vigorously modelled spaniels. The building is delightful throughout. The woodwork and plasterwork are full of interest, but dilapidation grows apace, and the little courtyard has a neglected, almost doomed, look, which bodes ill for its survival. A motor-car factory of uncompromising utility and vileness has been added within the last few months. One fears that the success of the English Juggernaut may soon claim another victim, and one that Coventry can ill spare.

At Poundisford Park, near Taunton, there is a very complete system of rain-water leadwork (Fig. 20). From the valleys at each side of a high-pitched roof the water descends through heads and pipes (obviously recent) into a very pretty horizontal gutter with ornamental top edge. The outlet from this gutter conducts the water into a turretted head (Fig. 18) with pipe discharging into

a handsome lead cistern. The "castle" treatment of the head is so distinct from the stiff feeling of the pots of flowers which, with the date 1671, decorate the cistern, that one is tempted to think the head is earlier. As, however, the Durham head of 1699 (Fig. 21) combines the same "castle" motive with a markedly classical cornice, we may take the Poundisford Park head as probably contemporary with the cistern. We have here a parallel in leadwork to the mingling of the two manners in stonework which appears on the Salisbury chantry at Christchurch and elsewhere. The gutter is notable; the same pattern, but doubled, appears on another house at Taunton. At East Quantocks Head there is a head with a parapet of the same outline, which was evidently a peculiarity of the Somersetshire plumber. I have not found the same outline elsewhere, save in a feeble variation at Stanwick, Yorkshire.

The Durham Castle heads, of which one is illustrated in Fig. 21, have an especial value historically, as showing the pains taken that heraldry should tell its story accurately. A head of 1661 fixed to the south wall of the chapel bears a shield with the arms of the See of Durham alone, which was then vacant. The example illustrated bears on the richly-mantled round shield the arms in pale both of the See and of Bishop Crewe. As Crewe was a baron in his own right, we have as his personal mark the baron's coronet as well as the coronetted mitre of the prince bishops which indicated his office. The labels of the mitre with tassels stand clear of the flat surface of the head, and are unusually narrow. The lower member of the cornice is a delicate bead and reel moulding, the upper an ogee with a rich but shallow classical pattern worked on the face.

The baron's coronet recurs both on the side of the head and on the ear. In the latter case it is enclosed by a moulding which looks like the cast cable which is so pleasant and constant a feature in the old work, but is actually a flat ribbon closely twisted. This device would bear repetition to-day. Unhappily the original lead pipes have been abolished and iron substituted. The altogether odious cast-iron ear, which fastens the socket to the wall, seems a needless barbarity. Of all the offences of cast-iron pipe surely the band ear of this type is the greatest. If it serves no other purpose, though, it is a commentary vigorous enough on the distance we have travelled since 1699.

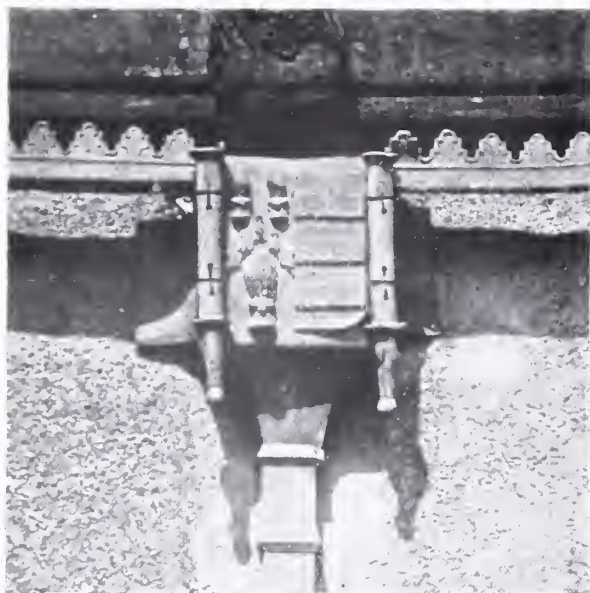


FIG. 18.—POUNDISFORD PARK.



FIG. 19.—COVENTRY.

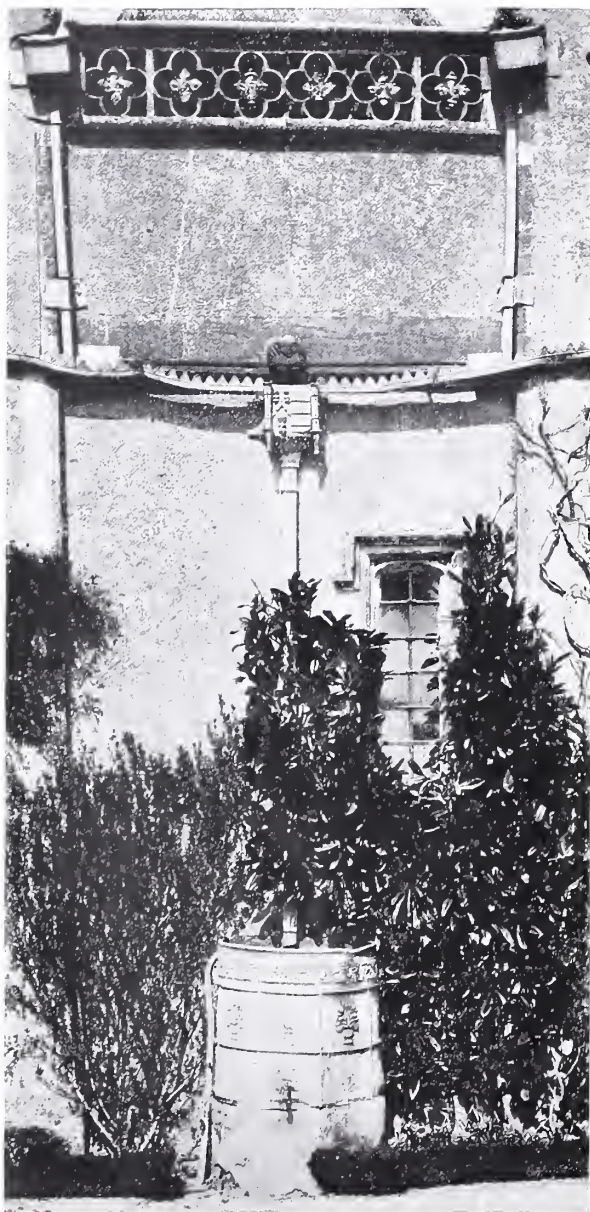


FIG. 20.—POUNDISFORD PARK.



FIG. 21.—DURHAM CASTLE.



FIG. 22.—HADDON HALL.

Very similar to the Durham heads are those of Bolton Hall (Fig. 17), though here the Renaissance rubicon has been finally crossed, and the only suggestion of mediæval parentage which remains is in the pierced fronts of the cylinders. The arms are those of Charles, sixth Marquis of Winchester, afterwards Duke of Bolton, and others of the six heads have the arms of his second wife, Mary Scrope. The modelling of the Paulet hinds which support the shield is especially vigorous. In one head the Paulet coat is supported by the Scrope choughs, a hybrid arrangement due doubtless to the Scrope shield having been lost, and the gap filled by a plumber who was a Gallio in heraldry.

A technical word may be added as to the making of these heads, which applies, more or less, to all heads of the late seventeenth century. The main box part is made of cast sheet lead beaten to the shape and soldered up. The cornice has been cast in lengths, mitred, and soldered on. The dentils and all other ornaments are separate castings soldered on. The substance of lead averages 10 lb. to the foot, but varies between 7 and 12 lb. The method of fixing, viz: simply soldering on from the front instead of also pinning through to the back, is slovenly and unlike the best work at Haddon; hence the dropping off of ornaments and muddled re-fixing. The overlapping acanthus leaves at the bottom of the head are characteristic of the period, and while giving an undeniable richness, do so at the price of troubling the general effect. In 1678 there had ceased to be much reticence in the use of applied decoration. There are no traces of gilding, colour, or bright tinning. The pipe sockets and ears have cable-moulded bands, and are also decorated with the heraldic devices. The pipes used with the flat heads are rectangular ($5\frac{1}{4}$ inches by $3\frac{1}{2}$ inches), and with the angle heads are circular ($4\frac{1}{2}$ inches).

On the Judge's Lodgings at Winchester is a head dated 1687 (Fig. 25). It is interesting that the shield, which was probably painted with a coat of arms, is fixed to the head only at the top and the bottom, and stands quite clear between.

I referred in my last article to some of the Haddon Hall heads. They are numerous, and are of all dates, from about 1580 to 1696, thus presenting a picture of the development of design and craftsmanship which we get in no other house. Some heads in the Upper Court, with rich arabesque masks and balusters at the corners, mark a break from the older manner, though even on them a slight projecting embattled cresting is retained for the delightful spots of shadow which it throws on the top edge (Fig. 16).

There are also a number of heads of very simple treatment (Fig. 22), which are most difficult

to date. I think, however, we are safe in ascribing them to about 1670. There is in the Guildhall Museum the front only of a head, dated 1676, the top of which is nicked and bent over in exactly the same way. It would be hard to devise a head of such perfect simplicity which yet should be so entirely successful.

At South Kensington Museum are five heads from the Old Manor House of Bucklebury, Berkshire, long since destroyed. They are of two main types—one rather pretentiously architectural, the other of the funnel shape, which in its simpler and undecorated form is so common on late eighteenth-century buildings. The latter (Fig. 23) is redeemed from banality by the two antler-like ornaments and the (by me at least) undecipherable monogram. It is altogether a rather slovenly piece of work, and seems to be an amateurish copy made in 1705 of a head of the same shape, dated 1694, which has ornaments of great simplicity and distinction.

The larger head (Fig. 24) is an excellent example of 1690; the twisted edging is not only rich, but its softness seems peculiarly suitable to the material. The pilasters are unusually treated. They are fluted, with Ionic capitals, and have a dado of chequers, which lighten the design with a pleasant spottiness. The three connections between the bowl and the funnel are also rare; they give the general effect of trusses, but are only thin straps. The lettering is admirable, and stands for Sir Henry Winchcombe and Elizabeth, one of his two wives of this name.

Fig. 29 (below) shows what is perhaps the most rococo of English heads. It is from Canons Ashby. The rich sweeping curve of the curled ears is its most interesting feature, and one that deserves repetition in a less exuberant key.



FIG. 29.—CANONS ASHBY.



FIG. 23.—BUCKLEBURY (S.K.M.).



FIG. 24.—BUCKLEBURY (S.K.M.).



FIG. 25.—WINCHESTER.



FIG. 26.—SHREWSBURY.



FIG. 27.—NOTTINGHAM.



FIG. 28.—ABERDEEN.

Fig. 26 brings us to another sort of thing altogether. In the eighteenth century local schools of plumbing seem to have taken shape, and to have influenced the craft of a large district. Shrewsbury affords a notable instance of this. There is a number of heads of this type, with simple cornices and very elaborate monograms, and many bear the municipal leopard's mask. While they show great technical capacity, and give a note of gaiety to the bald brick and stucco elevations, they are frankly of a type which needs no repetition now. Two heads in The Square of 1731 are more loaded with coarse ornament than the example here figured, which was fixed in 1716 on a now demolished building, and is at present in use at the constabulary offices. Shrewsbury pipe sockets sometimes take the form of Corinthian capitals, a superfluity of architectural naughtiness which is not unamusing.

Another local school is that of Nottingham, though here there is more variety. The very late example of Fig. 27 is of a happy simplicity, if somewhat amorphous.

My last example of local peculiarities I take from Aberdeen. It is in the possession of Mr. William Kelly, to whose acute and sympathetic observation I am indebted for much

valuable information anent the Aberdeen lead-work. Fig. 28 shows one of a type that occurs all over the town, though some are even more elaborate. The three large leaves, with modelled faces and serrated edges, are full of vigour, and the cast open-work valance, composed of a rose separated from the thistles on either side by fleur-de-lys, is a striking feature. These ornaments are, of course, inverted. The top mouldings are perhaps rather too heavy, but the whole composition is eminently successful. As the date is probably about 1750, this head contrasts pleasantly with the far less spirited work of like date in England. The Aberdeen heads repay study the more, in that Scotland generally is rather weak in leadwork.

As for pipe-heads in Ireland, I confess to an abysmal ignorance. I fancy that their place is in the chapter which the snakes occupy in the traditional history, but this may be "another injustice."

LAWRENCE WEAVER, F.S.A.

I have to make grateful acknowledgments for permission to reproduce photographs to the Lord Bolton, F.S.A. (Fig. 17), Captain Charles Lindsay (Figs. 16 and 22), G. Harry Wallis, Esq., F.S.A., Director of the City Museum, Nottingham (Fig. 27), and to Leonard Stokes, Esq. (Fig. 29).

The Researches of Mr. W. H. Goodyear.

FROM the time of the revival of Classic Art in the sixteenth century, known as the Renaissance, architects and antiquarians have made careful and elaborate studies of the finest ancient Greek buildings, and more especially the Parthenon. Until the first quarter of the nineteenth century this last-named building and others were always assumed to be built upon perfectly rectilinear lines. In the year 1837 Mr. John Pennethorne, and about the same time two Germans, Messrs. Hofer and Schaubert, discovered that the apparently vertical and horizontal lines of the Parthenon were not in reality truly perpendicular or horizontal, but were made up of a series of delicate leans and curves, quite unapparent to the eye of the ordinary, or indeed even to that of the trained observer. So delicate are these leans and curves that they were only distinguishable by means of a careful and systematic use of the measuring rod and plumbing line. Even then, without some clue to their presence, they were apt to be overlooked, for as far back as the year 1756, Stuart and Revett had measured, and, it may be presumed, carefully, the whole of the Parthenon; and, in the early years of the nineteenth century, Lord Elgin had erected scaffolds

upon the same building without discovering their existence.

Pennethorne himself had paid two visits to Athens without being aware of any such refinements, and it was only the discovery of identical curves in the Theban temple of Medinet Habou, and a passage hitherto overlooked in Vitruvius, which calls attention to these very curves in the Greek buildings, that set him on the track of those in the Parthenon.

For this purpose he paid another visit to Italy, and was confirmed in his opinion that such leans and curves did exist in the ancient Greek buildings. Meeting with lack of encouragement from his architectural and antiquarian brethren, he did not make generally known the result of his researches until many years afterwards.

In the meantime, in 1851, Mr. Francis Cranmer Penrose acquainted the architectural world with the fact that the supposed vertical and horizontal lines of the Parthenon were neither true verticals nor horizontals, but were in reality composed of delicate leans and curves.

Such is, in brief, the history of the now well-known Greek curves, and the other architectural refinements which are to be found in the ancient

Greek buildings, the discovery of which has gone far to revolutionise the study and practice of classic architecture.

Up till the present time the practice of these aids to architectural beauty has been thought to have died with the builders of ancient Greece.

To Mr. William Henry Goodyear, Curator of the Institute of Fine Arts, Brooklyn, U.S.A., belongs the honour of demonstrating that the builders of ancient Rome, and of Byzantium, those of mediæval times, and even of the early Renaissance, actually employed similar devices in many of their finest buildings.

Mr. Goodyear first discovered that the mediæval builders employed such refinements at Pisa in the year 1870, and from that date had made a series of systematic and careful surveys of a large number of Italian and other churches, the result being that he has arrived at the conclusion that what have hitherto been regarded as irregularities, the result of careless workmanship, sinking of foundations, etc., are, in many cases, a survival of the old Greek leans and curves, transmitted down from Greece through generations of workmen.

Besides the more apparent refinements, which up till now have been observed, but not appreciated, Mr. Goodyear has discovered others which are quite as subtle, and analogous to those existing in the Parthenon and other Greek buildings.

Mr. Goodyear, upon his visit to Pisa in 1870, was struck by the sloping of the lines of the cathedral, which seemed to him to be capable of some explanation, and arrived at the conclusion that such could not have been the result of accident, but must have been built so with intention. He was lucky enough one day to come across the little eleventh or twelfth-century church of Santo Stephano, which gave him the key to the mystery of the sloping lines of the cathedral. The interior of the building is built upon a rule of sham perspective, which Mr. Goodyear notes is well known to every nineteenth-century scenic artist. An examination of this interior shows that the pier spacings diminish in size towards the choir, the arches drop in the same direction, the capitals and piers descend in like manner, and, finally, the pavement slopes upwards from the west end.

The whole result of these tricks, or as they should more rightly be termed "refinements," is to give to the spectator who may view the building from the west end, the impression that he is in a very much larger edifice than is actually the case.

From a thorough examination of these aids to the perspective value in Santo Stephano, Mr. Goodyear came to the conclusion that the sloping string courses of the cathedral were intended to

have a lengthening effect upon the building, when seen by the spectators from a particular point of view, a result which he afterwards proved to be the case. Upon a further study of the interior of the cathedral, it was found that there are many refinements present, similar to those in Santo Stephano, and which up till now have been either overlooked or set down to one of the causes cited earlier in this paper, by the generations of architects who have visited the building.

The discovery of the presence of such refinements at Pisa led Mr. Goodyear to a systematic and thorough examination of nearly every important church in Italy, and of others in Northern France, the result being the discovery that the refinements discovered at Pisa are not confined to buildings in that town, but are present in many of the mediæval churches which were examined.

Amongst the more important buildings which the survey party at work for the last ten years under the auspices of the Brooklyn Institute of Fine Arts has visited, and in which have been found the presence of such refinements, are the following: The cathedrals at Pisa, Siena, Fiesole, Troja, Genoa, Prato, St. Mark's, Venice; the churches of San Pietro Somaldi, Lucca; San Stephano, Bologna; Santa Maria Bianca, Lucca; S. Frediano, Pisa; S. Giorgio in Velabro, Rome; S. Maria Ara Coeli, Rome; S. Saba, Rome; besides the cathedrals and churches of Northern France, St. Loup, Chalons; St. Alpin, Chalons; Notre Dame, Chalons; St. Remi, Rheims; St. Jean, Caen; Notre Dame, Paris; St. Ouen, Rouen; and the cathedrals at Amiens and Laon, together with many others.

Two conclusions which Mr. Goodyear has arrived at, after some thirty-five years spent in searching for cases of architectural refinement, are that the mediæval builders were very much adverse to mathematical symmetry, the eye being much better pleased by what is not too obvious, and that in other cases the refinements are present in a building to increase or correct its perspective value.

The refinements which Mr. Goodyear has proved to exist in many buildings are to be found in the following list, which is taken from an article by him on the subject published in an American magazine,¹ and I cannot do better than quote his actual words, which may more accurately convey to the reader the results of his investigations, than were I to paraphrase them:—

(a) "The construction of the piers and vaulting of many mediæval churches in a delicate curve, sometimes leaning into the nave, sometimes bending back from the nave, and in either case making

¹ "Optical Refinements in Mediæval Architecture" (*Architectural Record*, vol. vi. July-September, 1896; No. I. pp. 1-16).



SANTA MARIA DELLA PIEVF, ARRAGO.

The widening of the piers at the transept is about 28 inches.

(By permission of Mr. Desmond, The Museum of Arts and Sciences, Brooklyn, U.S.A.)

a delicate transition return curve to the arch of the vaulting."

Examples of such a refinement are to be found in the cathedral at Pisa and the cathedral at Vicenza. So subtle is this particular refinement, and so easily does it escape the eye, even when one is aware of its existence, that no writer has mentioned it before Mr. Goodyear made his investigations. Architects when they have noticed it have attributed it to the "thrust" of the vaulting of the aisles against the piers supporting the nave arches. In opposition to any such theory Mr. Goodyear mentions cases of such bends occurring where such a thing as thrust is impossible; for instance, at the cathedral at Vicenza the refinement is present, where there are no side aisles. In another case the curve was found upon piers built against chapel walls 20 feet in thickness.

(b) "A refinement analogous to the last (a), and probably the original and earlier form of it. *It is nothing more or less than the survival of the classic entasis in the Middle Ages, and is found in the engaged half-columns which occasionally face the Romanesque pier.*"

Good examples of this are to be found in the cathedral at Fiesole and in the church of San Mianto at Florence.

(c) "A refinement possibly or probably derived from (a) and frequently connected with it; a leaning outward and away from the nave of the nave piers, in phases grading from an exaggeration of the backward bend and continuing the curve, to others in which the leaning backward or spread of the piers is in a straight line and not in a curve." Like other refinements this feature has been put down, erroneously, to the thrust of the arch or vaulting, but there is an example at Trani, where such a lean occurs "against the lines of transept walls" 30 or 40 feet in depth.

Examples are present in the church of San Francesco at Pavia, St. Mark's, Venice, and in numerous others.

(d) "A system of bends in vertical lines in the exteriors of façades and choirs, differing from some of the interior pier bends in the fact that the lower part of the bend is *always* a forward lean towards the eye facing the wall, and never, as often in the case of the interior piers, a backward lean beginning at the base (as regards the eye of the spectator in the nave facing the pier)."

Such a lean occurs in the façade of the cathedral at Pisa, which Mr. Goodyear mentions Ruskin has, erroneously, put down as being due to settlement.

(e) "Occasional leans in circular buildings or towers which are not due to accident, and tending to raise a question as to others in which the evidence for accident is not clear, but simply presumptive, and based on the supposed improbability that any building made by common-sense mortals should be unlike those made by nineteenth-century common-sense mortals."

Examples of leans in towers which are due to deliberate intention, and not to accident, are the Baptistery at Pisa, the Bargello Tower at Florence, and the Torre del Publico at Ravenna.

(f) "Curves in plan of horizontal cornice lines." Many examples of this particular feature show the same delicacy of refinement of the old Greek curves, and Mr. Goodyear is positive that this is a distinct survival of such. A good example occurs in the cloisters of the church of the Celestines at Bologna.

(g) "Curves in plan in the alignment of columns and in clerestory walls." This feature is found to have degenerated in the later Middle Ages to mere bends, which have been attributed "to careless building when considered in isolated cases only."

Good examples of such curves are to be found at Fiesole, Trani, and Genoa, and other places.

(h) "Curves in elevation."

Such curves, when regular, cannot be attributed to thrust or careless building; for, as Mr. Goodyear argues, "There can be no suggestion of carelessness for an exact and regular curve in elevation. There can be no suggestion of accident for curves which are invariably curves convex to the sky-line. If accidental, why are not some curves concave to the skyline?" A good example is to be found in the north aisle of Pisa Cathedral, in the alignment of the plinths which support the columns.

(i) "A refinement which consists in increasing the size of the arches near the main entrance of the church and diminishing either space or height, or both, in the direction towards the choir, thereby giving the building an effect of greater dimension."

The spectator upon viewing the church from the west end, naturally takes the size of the bay nearest at hand as the size for all the others. Over thirty different churches, examined by Mr. Goodyear, show the presence of such a refinement, a good example occurring in the cathedral at Fiesole.

(j) "A refinement analogous to the last but applied to the second of the two transverse arches which span the nave of a church at the junction with the transept."

By dropping this second arch below the level of the first a false perspective is obtained, and the church looks larger than it really is. One

of the most marked instances of this refinement occurs in the cathedral at Siena, where the second arch is no less than five feet below the level of the first. Other churches in which this refinement is present are the cathedrals at Piacenza, Pisa, and the church of Santa Maria Novella at Florence.

(k) "A refinement which consists in a pavement sloping upward toward the choir, nearly always with arches and capitals brought down to the horizontal level, and sometimes with capitals and arches brought down below the horizontal level. The effect in either case is one of perspective illusion;" the object being to increase the apparent size of the building.

No less than eighty of the Italian churches which Mr. Goodyear examined show the presence of such a refinement, among which may be quoted the churches of Santa Maria Ara Coeli, Rome, the Cappella Palatina, Palermo, and the cathedrals at Siena and Orvieto.

(l) "A refinement which consists in converging the walls of the church or the piers and walls of the nave in the direction of the choir." Only five churches, amongst those examined in Italy, exhibit this feature, the most prominent instance being that of San Stefano at Venice. Poitiers Cathedral is a French example.

(m) "A refinement which consists in building the church with an oblique or twisted plan, so regulated as to mystify the eye as to the proportions of the building and without revealing itself as an obtrusive fact."

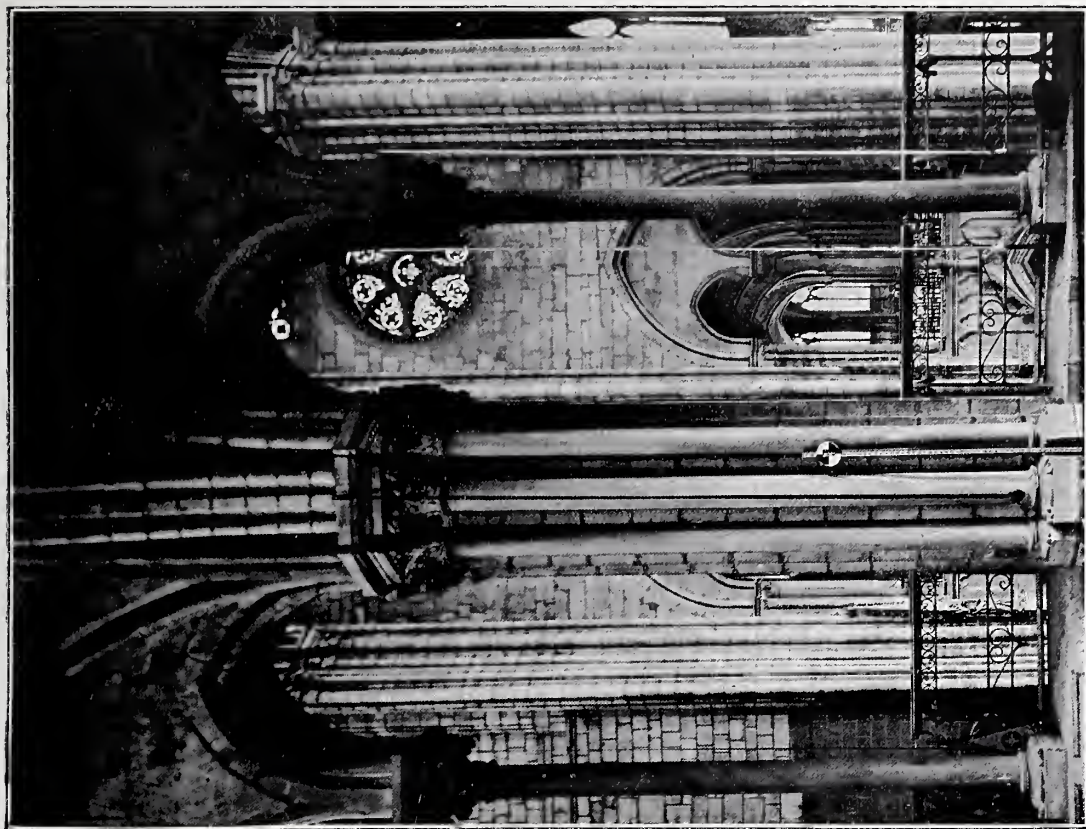
Mr. Goodyear discounts the well-known explanation of the deflected choir, which is generally regarded as being symbolical of the bending of our Lord's head upon the cross. He puts such a theory down merely to mediæval or modern invention, as there is no evidence to support this fact. For instance, there are cases of this deflection occurring in churches without transepts, and which are therefore not in the shape of the Cross, and others where the whole plan of the church is twisted.

Examples of churches in which the choir alone is deflected are too well known to require mention, but churches in which the whole plans are off the straight are to be found at Arezzo, Bari, Toscanella, and other places.

(n) "There are many phenomena which are most easily classed under the general heading of 'symmetrophobia,' or dislike of mathematical symmetry."

Such a designation includes many of the facts given in the above list and others, such as the bent column at Arezzo.

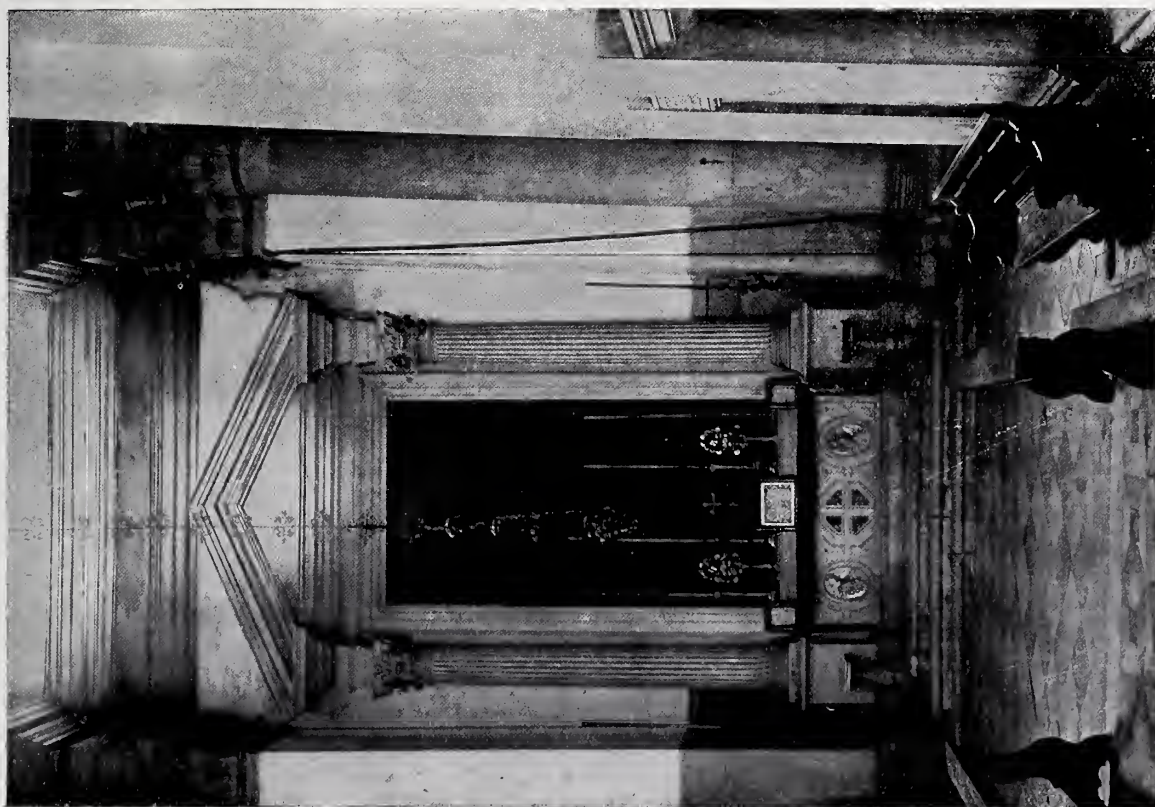
The refinements given in the foregoing list have been, for the most part, discovered by Mr. Goodyear, but some, as has been stated before, have



NOTRE DAME, PARIS.

LEFT TRANSEPT GALLERY, LOOKING TOWARDS CHOIR.

(By permission of Mr. Desmond, The Museum of Arts and Sciences, Brooklyn, U.S.A.)



S. GIORGIO MAGGIORE, VENICE.

VIEW LOOKING ACROSS THE FAÇADE WALL TOWARDS THE RIGHT AISLE.

(By permission of Mr. Desmond, The Museum of Arts and Sciences, Brooklyn, U.S.A.)

been known to architects for some time, though put down as irregularities due to various causes, such as bad building. Examples of the more apparent refinements are not wanting in the cathedrals and smaller ecclesiastical buildings of Great Britain. The irregular spacing of the bays of the nave, in Ely Cathedral, is an example of the refinement mentioned under the heading (i), whilst the choir is deflected from the main line of the church.

St. Giles, Edinburgh, shows similar refinements, and the leaning outwards of the west end of Paisley Abbey, and the sweep of the side walls of Kirkwall Cathedral, are other instances. A more thorough investigation of these and other buildings may disclose the presence of features hitherto unsuspected.

Mr. Goodyear does not dogmatise. He merely lays before the public a store of interesting and curious information, and backs up his theories with some very sound arguments. He is quite willing to revise any opinions he may have formulated in view of any fresh light which may be thrown upon the subject.

Part of the large collection of photographic enlargements and surveys which Mr. Goodyear has got together in the course of his studies, has been on show at Rome, where it has aroused considerable interest.

The greater part of the collection is, however, housed in the Institute of Fine Arts at Brooklyn. The Edinburgh Architectural Association has taken the opportunity of the Rome exhibit being so near this country to obtain it, together with the larger portion from Brooklyn, and intends holding an exhibition of the same in the National Portrait Gallery, Queen Street, Edinburgh, from the beginning of September to the middle of November of this year.²

Great thanks are due to the Directors of the Brooklyn Institute of Fine Arts and to Mr. Goodyear, who have placed every facility in the way of the Edinburgh Association by giving every help in the matter of sending over the drawings and surveys to this country.

During the progress of the Exhibition it is intended to hold a conference of architects and others to meet Mr. Goodyear, who has promised to pay a visit to Edinburgh early in September. Such a conference should not fail to throw some fresh light upon the study of a subject which may be said to be only at present in its infancy. Besides numerous surveys which have been specially lent by Mr. Goodyear, he has written a new catalogue for the Exhibition, which is to be very fully illustrated with reproductions of many of the photographs and drawings on view.

L. INGLEBY WOOD.

² It was originally intended, as announced, to open the Exhibition in the middle of August, but this has been found impossible owing to the difficulty in getting the photographs and drawings delivered in this country in time.

EDITORIAL NOTE.—Mr. Edward S. Prior will review for this magazine the exhibition of Mr. Goodyear's collection at Edinburgh.

Cheap Cottages and the Exhibition at Letchworth.—I.

THE exhibition of "cheap" cottages which is now being held at Letchworth, the first Garden City, affords an opportunity of reviewing the subject of cheap cottages generally. The numerous cottages of all forms and sizes there on view constitute a text for a general discussion.

The exhibition was organised by the *County Gentleman* in response to a suggestion made by Mr. J. St. Loe Strachey, the editor of the *Speculator* and proprietor of the former journal. The Garden City Company offered a site on which cottages might be erected where by-laws were not too stringent. Donations were solicited from the public, and an influential list of patrons was formed. The stated primary object of the exhibition has been "to secure the erection of the best £150 cottage" (we quote from the exhibitors'

application form and the official catalogue), and a first prize of £100 was offered in this competition. The conditions were that cottages entered for this prize should be detached, and provide, as far as possible, accommodation as follows: either one large living room and scullery or one small room and a kitchen scullery; three bedrooms, with two fireplaces, containing a total cubic space of not less than 2,000 ft.; height of rooms not to be less than 7 ft. 6 in. Further prizes were offered for the best pair of five-roomed cottages costing not more than £300 the pair; for groups of three or four cottages, no cottage containing more than six rooms, including scullery, and not to cost more than £35 per room; and for a detached cottage, or pair of cottages, each containing not more than six rooms, including scul-

lery, erected at a cost of not more than £35 per room. In addition there are prizes for designs and specifications to similar requirements to the above four classes, and for a cottage built of cement concrete, a wooden cottage, a model of a small holding, improvements in building materials and fittings, etc.

The setting of the limit of £150 as the cost of a cottage was due to Mr. Strachey's article, "In Search of a £150 Cottage," in which he calculated that an agricultural labourer whose wages averaged between 14s. and 16s. a week could not afford to pay more than 3s. a week, or £8 a year, for rent; and that, therefore, a cottage must not cost more than £150, as the interest on that sum at 4 per cent. would amount to £6, and rates, annual repairs, sinking fund, and insurance, would account for the other £2. He did not count anything for the site or water supply, which, he thought, the landowners on many estates would be willing not to take into consideration in the rent.

It is clear from the above that the cottages were intended to be suitable for agricultural labourers and to cost, exclusive of site and water supply, £150. In the preliminary application form for exhibitors (before referred to) among other data to be filled in by competitors was a statement of the actual cost, to this being appended a note to the effect that the cost of carriage of materials to Garden City Estate was not to be included, the object being to ascertain the nett cost of erection in each locality. Again, we find a note in the official catalogue to the effect that "the estimated cost of erection in each case is to be exclusive of architect's fee and builder's profit." Most of the competitors state the cost of their erections at the specified sum of £150 exclusive of these necessary items. Whether they will be held to have conformed to the conditions I cannot say, but they have certainly not provided £150 cottages; and, if we accept Mr. Strachey's statement of the problem, fail to solve it. Some cottages, too, evidently cost more than £150 even after the recognised deductions are made, and their designers will find it difficult to reconcile their statements with the truth; with others the figures given are plainly unreliable, because the catalogue was published before the erection of their cottages had been finished, or in some cases even begun, and everyone who has had experience of building knows how easily estimated costs (especially when made on the "hope, faith, and belief" principle) are exceeded. It has been plain that a good deal of the agitation for and interest taken in the subject of cheap cottages of late has sprung from persons other than the agricultural labourer or artisan—

persons who have been caught with the "week-end" fever, and while seeking for a cheap cottage, are prepared to spend a good deal more on it than £150. Visits to the exhibition have shown its attraction to these people; and those competitors who have used the exhibition to advertise their abilities in the way of pretty design, "l'art nouveau" or "arty and crafty" furniture, and patent fittings—far too expensive for the agricultural labourer—have been wise in their generation. It is doubtful, however, if the methods of some few designers who have hung the walls of their cottages with designs for houses of large size, buildings of other kinds, unsuccessful competition drawings, or filled the rooms with specially designed furniture, etc., are consistent with professional dignity.

We may now consider what the problem of housing the agricultural labourer is, and the means of solving it. It has been determined by the inquiry of Royal Commissions and statistics gathered by the Census Commissioners, that there has been a dearth of cottages in the country resulting in overcrowding, growing worse year by year throughout the last century, and that this has been one of the chief causes of the steady decrease in rural population, and the increase in towns, with all the attendant difficulties and dangers.

In former times the erection of cottages seems to have been looked upon as a necessary part of the equipment of an estate; but now, through the depression in agriculture, and the altered conditions of trade in this country, the landowner seeks an immediate financial return from the money he expends on houses, or depends on outside speculators to provide accommodation for his workers. The practical failure of the last-named means of supply makes it incumbent on landowners to provide housing accommodation, while the depression in agriculture has resulted in much land going out of cultivation and depreciating in value. It must be accepted, therefore, that the current rates of wages to agricultural labourers will not bear increase under the present conditions. The artisan classes in towns have, of course, sought and obtained increased wages and more luxurious living, and the problems of the poor, and overcrowding, have become most pressing.

While statesmen are endeavouring to find a remedy for this state of affairs by a change of our fiscal system, the limitation of municipal socialism, and the creation of garden cities, landowners are seeking a palliative in the cheapening of building, the cost of which has been steadily increasing owing to a general rise in wages in the building trades. With the latter aspect we are here particularly concerned.

It will be seen above that Mr. Strachey puts the agricultural labourer's wage at 14s. to 16s. a week; but Mr. Wilson Fox, of the Board of Trade, in the official report on the earnings of agricultural labourers in the United Kingdom in 1905, although he gives the lowest average weekly earnings in England as 14s. 6d. in Oxfordshire, and the average earnings in Norfolk as 15s. 3d., Gloucestershire as 15s. 5d., and Suffolk and Dorsetshire as 15s. 6d., states that the average cash wages are 11s. 11d. in Dorsetshire, 12s. in Oxfordshire, 12s. 4d. in Norfolk, 12s. 11d. in Gloucestershire, and 12s. 9d. in Suffolk, while in some districts of Dorsetshire they were as low as 10s. Many cottages in the country are let at 1s. 6d. a week, and the provision of a house for this rental is, in my opinion, what should be striven for if the needs of the poorest paid are to be met. A £150 cottage may be all very well for the higher-paid labourer, but a £100 cottage is the ideal for the poorest. 1s. 6d. a week amounts to £3 18s. a year, and this would allow 3 per cent. interest, with a remainder for repairs, etc.

Bylaws have undoubtedly been too stringent for rural districts, but they have not been in force everywhere, and the Local Government Board's code has recently undergone modification, and, though still extravagant, is now less burdensome. Measures are being taken, however, that it is hoped will remove unnecessary restrictions.

To build a cottage cheaply attention has to be paid to economy in five directions: (1) Planning; (2) Materials; (3) Fittings; (4) Cartage; (5) Employment of Labour. It is proposed to treat them in this order.

Planning.—In planning a cottage for an agricultural labourer, it is necessary to consider the life and requirements of the occupants; and though this may be considered a truism, it is apparent from the many plans that are proposed that designers are too often ignorant on this essential point.

A labourer's cottage must be designed with a view to his children. The family of course require a living room and bedrooms; the number of the latter is the point that requires decision. When the children are babies, say up to the age of three or four years, they may sleep in the same room as their parents. From four to seven years of age boys and girls may be allowed to sleep together, but should be separated from their parents, and from six onwards the sexes ought to occupy separate rooms. At the age of about fourteen years the girls often go out to service, or may stay at home to assist in the fields or cottage industries until they are married at the age of eighteen to twenty years and start housekeeping for themselves. The boys may go out to service,

join the army, or remain at home. However, from the age of fourteen the children may be regarded as wage-earners, and therefore can assist their parents to pay for the larger house needed to give the accommodation that will then be required. The rent is often partially made up by taking a lodger, but we think this will be regarded as undesirable with a house occupied by a young couple. It is evident that single men and women and those past work must find room, but for the single this should be found in cottages where there is a small or no family, such as with parents or relatives, and couples whose children have grown up and departed; and for those past work with their children or relatives. Where an old couple have been frugal and saved up for their old age, or are pensioned by their relatives, they may require a house of two rooms (a living and a bed room).

For bachelors, separate cubicles with common living and mess rooms have been provided in a block, with two other cottages for married couples. These bachelors' quarters were arranged at one end of the block, there being connection between the kitchen of the middle cottage and the bachelors' mess-room, so that the domestic work and cooking could be done by the women of the middle cottage. A block of cottages on this principle was illustrated in *THE ARCHITECTURAL REVIEW* for June 1905.

We will consider a three-roomed cottage and its possibilities of accommodation. Here there are two bedrooms, and in the one an agricultural labourer and his wife sleep, and with them one, two, or perhaps three children may sleep, until they reach the age of three years. This, then, must be a large room. The other bedroom may be given over, for the time being, to the father and mother, or a relative (say a younger brother or sister), but it is soon required for the growing children. When these reach the age of six the boys should be separated from the girls. As three sleeping rooms are required, and there are only two bedrooms, the only alternative is to utilise the living room. This may be regrettable, but with the very poorest it has to be done, and therefore must be reckoned with. It is only common sense for the poor to make use of free space, and a lodger is often taken in with even such small accommodation. It is certainly preferable for persons to sleep in sufficient air space to overcrowding and mixing the sexes in the bedroom, even though the room has been in use during the day. As in the country the occupants spend a greater part of their time in the open air the objection is further weakened. A three-roomed cottage can be held, then, to accommodate the parents and a baby in one bedroom, two girls (and a younger child at a pinch) in the other, and two

boys, say, in the living-room—namely, six children are accounted for, and this is a reasonable allowance for a labourer's family, for after fourteen years the children, as was said before, become wage-earners. A cottage of this size, then, is suitable for the poorest.

We now come to the four-roomed cottage, consisting of a living-room and three bedrooms. It is apparent from the above that this will accommodate six children, and if a family is of exceptional size the living-room might be utilised for a further two.

With a five-roomed house a room can be allowed which might be a bedroom with a large family, or serve as a parlour for the careful, hard-working labourer, who deserves every encouragement to social advancement.

It is evident the hygiene of a cottage requires careful attention. Upon the physique of the country labourer largely depends our national existence, and this must not be suffered to be impaired. The planning and construction must be such that a cottage is healthy and comfortable all the year round—in winter time and rainy weather as well as in summer and fine weather. Some persons are almost hardened enough to live in the open and to brave the most insanitary conditions for a time, but our desire should be not to eliminate the weakly but to nurture them to be strong. Possible illness must also be considered. Sanitary regulations as to water supply, disposal of sewage, waste water, damp and foetid air, and continual inspection by properly appointed medical officers are all necessary, and need not be dealt with to any extent here; but the subject of ventilation and the cubical contents to be afforded is important as affecting the size of rooms. The bylaws have laid down a minimum amount of air space on the recommendation of sanitarians, and this is continually advocated. As this affects the cost so materially, it is wise to consider the question somewhat closely. The arguments for regulating the air space are summarised by Mr. Robert Williams and Mr. Fred Knee in "*The Labourer and his Cottage*,"¹ and they have urged the Local Government Board, on behalf of the Workmen's National Housing Council, to refuse relaxation in this respect. Parkes in his work on hygiene fixed the amount of fresh air that should pass through a given space in an hour in order to maintain the proper degree of purity at 3,000 cu. ft. for each adult healthy male. He quotes Pettenkofer's experiments as to the smallest space which could be efficiently ventilated, placed at 424 cu. ft. by the "best mechanical contrivances and regardless of cost," the air being changed six times per hour. As mechanical means are out

of the question on a score of cost, Parkes considered so-called "natural" means, and thought a change of "five times per hour would be too much, at least in barracks with 600 cu. ft. per head; the rooms are cold and draughty when anything approaching to 3,000 cu. ft. per head per hour is passing through." He thought a change equal to four or three times per hour was all that could be borne under the conditions of warming in this country, and if this were correct from 750 to 1,000 cu. ft. should be the minimum allowance of initial air space. Huxley in his "*Elementary Physiology*" thought at least 800 cu. ft. should be provided. Willoughby, in his "*Hygiene*," advocates the same amount as Parkes. Dr. B. A. Whitelegge, in his "*Hygiene and Public Health*," thinks the air in a room cannot be changed more than about three times per hour without causing an inconvenient amount of draught, and hence, on the basis of 3,000 cu. ft. of air per hour, asks for an air space of 1,000 cu. ft. per person. Suppose we take four times per hour as a basis, this means for two persons a room 10 ft. by 15 ft. by 10 ft. high containing 1,500 cu. ft. Messrs. Williams and Knee ask for 1,200 cu. ft.

Now the assumption all along is that 3,000 cu. ft. of air per hour is required per person, and that there must be no draught. Our knowledge of ventilation has advanced of recent years. Mr. E. G. Rivers, Chief Engineer to H.M. Office of Works, in a paper read at the recent congress of the Royal Institute of Public Health, said that the supply of air per person per minute was placed by some authorities at 30 cu. ft., and stated that personally he was inclined to the opinion that a computation based upon this minimum scale would suffice very well if the air were of good quality. This means we must provide 1,800 cu. ft. of air per hour per person. On Parkes' basis of a change of air four times an hour, we have a space of 450 cu. ft. required per person, or 900 cu. ft. for a double-bedded room.

Everyone seems to be mortally afraid of draughts, but to the labourer and his family living in the pure air of the country and in the open most of the day a certain amount has no terrors, while if the case of a sick or delicate person is raised as an argument, the wearing of the old-fashioned nightcap that has unfortunately gone out of favour need only be resorted to, and a sufficient amount of warm bed-clothing provided. The fact is that it is not the quantity of air passing through a room that makes it draughty, but the restriction of the size of inlets which causes small streams of quickly-moving cold air to enter a room, heated many degrees beyond the temperature of the outside air, and impinge upon persons. We

¹ Published by the Twentieth Century Press, Ltd., 37A, Clerkenwell Green, London. Price 2s. net.

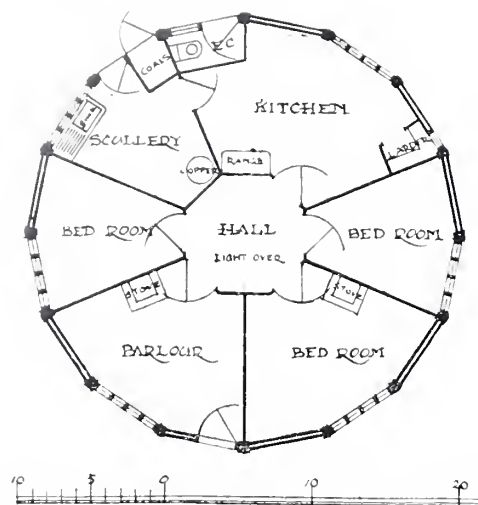
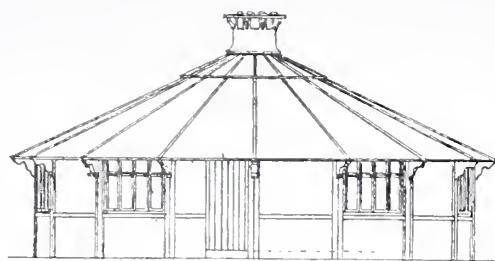


FIG. 1.—REINFORCED CONCRETE COTTAGE.
HESKETH AND STOKES, ARCHITECTS.

put delicate consumptive patients in rooms where one face is open, where large openings exist round the other walls near the floor, and with an opening in the roof, and yet they do not suffer, but improve in health. People suffering from bronchitis and asthma are troubled not by cold air but by changes of temperature. It is not well to overheat a bedroom, and large ventilation openings would avoid this, avoid draughts, and give a plentiful supply of air. All that is necessary is that persons should be shielded from a stream of colder air; so that we must place the window, the door, the ventilators, and the fireplace in such a position that air does not blow directly across the bed, and no harm will accrue. The working classes often bring all one's consideration to naught by stopping up every air inlet in the endeavour to gain warmth without expenditure on fuel, and become delicate and deteriorate physically. The principles of ventilation should be taught in schools, and persons encouraged to sleep with the windows open.

A designer must needs allow in a bedroom a space of 4 ft. by 6 ft. 6 in. for a full-size bed and space to get round it, say 46 sq. ft., totalling 72 sq. ft. If 8 ft. high the cubical contents will be 576 cu. ft. To give two persons 3,600 cu. ft. of air per hour it would need the air in the room to be changed six and a quarter times per hour. With a room this minimum size it is clear special attention should be paid to air inlets and outlets, and the positions of windows

and doors in relation to the bed. It is desirable that rooms should be larger than this, and I would not advise any bedroom for two persons smaller than 700 cu. ft. The Local Government Board requires 300 cu. ft. of space, and the London County Council 350 cu. ft. per person in common lodging-houses.

In planning a cottage every means of cheapening the cost must be availed of. Floor area and cubical contents have both to be provided, and we have first to consider the most economical shape for obtaining this. It is evident the wall enclosing an area should be as little as possible. This is least with the circle, but the self-evident difficulties entailed in such a plan render it uneconomical of erection, while the rooms are awkwardly shaped for the disposal of furniture. There is one cottage (No. 73) in the exhibition on such a plan, namely, that designed by Messrs. Hesketh and Stokes, and constructed in reinforced concrete by Messrs. Cubitt. It is here illustrated as a matter of curiosity (Fig. 1). The cost is put at £200, so that it offers no solution of the problem in hand. The most convenient shape is a rectangular one, and it is easily to be seen that a square contains the greatest area with the least extent of wall, being superior to an oblong, an L or a T shaped building. The arrangement of rooms in a square plan is easy, and the amount of passage small, whereas though an oblong may be slightly easier in the first respect it is wasteful as to the latter. If however the square is increased until its side exceeds 20 ft. the increase of material rendered necessary to strengthen the roof and floors will then cause the oblong to become the cheaper plan. In such a case a back addition is often most advantageous, as the offices can be placed therein and the construction of walls be inferior.

The next question is as to whether a cottage of the bungalow type, on one floor, is cheaper or dearer than one on two floors. The cost of flooring on the ground- or on the first-floor is practically the same: hence, so far a bungalow is as cheap as a two-floor cottage. But with the former there is twice the amount of roof in the latter, and if the plan is squared up to gain the small saving in wall that would be possible thereby, this would be balanced by the increase of strength required by a greater span. The foundations likewise are doubled, for though the walls are less in height, there can be no reduction as there is greater risk of settlement over the larger ground area covered. It has been argued that the space for stairs and landing is saved, but as the space under and over stairs is utilised to a certain extent this would be small, and is balanced by the increase in passages necessitated

by the larger area, and the extra chimney stack required. The one-floor arrangement costs more than two floors, while it is undoubtedly somewhat healthier to sleep above the ground level. Three floors are not economical, requiring the ground-floor walls to be materially strengthened. Two floors should not be exceeded, an increase of area being cheaper.

A saving in walls may be effected by building in blocks, because of the party walls. In a block of two, about 12 per cent. of wall is saved over one, *i.e.* from £15 to £25 on the two, or £7 10s. to £12 10s. each; in a block of three £10 to £17 each is saved; and in a block of four £11 to £18 each cottage. Beyond four in a block the saving is not very material. Of course the erection of a block of cottages enables the labour, cartage, purchase of materials, and drainage to be dealt with better than with one; but if there are more than six in a block, the fire risk increases (even if the bylaws do not require safeguards that will increase the cost in blocks of such size); and the advantages of three open sides for light and air, and convenience in planning, by allowing an entrance on the side, lead me to advocate blocks of four, in which the two end houses have these advantages.

Breaks, chases, and buttresses in brickwork or stone for effect, should be eschewed in small cottages as they entail unnecessary expenditure of labour and materials.



FIG. 2.—COTTAGE. G. M. CRICKMER, ARCHITECT.

We now come to the means of obtaining cubical contents. A room must have a certain minimum space and height, and if it is desired to increase the cubical contents we may do so by increasing either the area or the height. By the former method floors, roofs, and walls are increased, while in the latter only walls, and the balance remains in favour of the latter. The minimum height allowed under the competitive conditions of this Exhibition was 7 ft. 6 in., and this seems as little

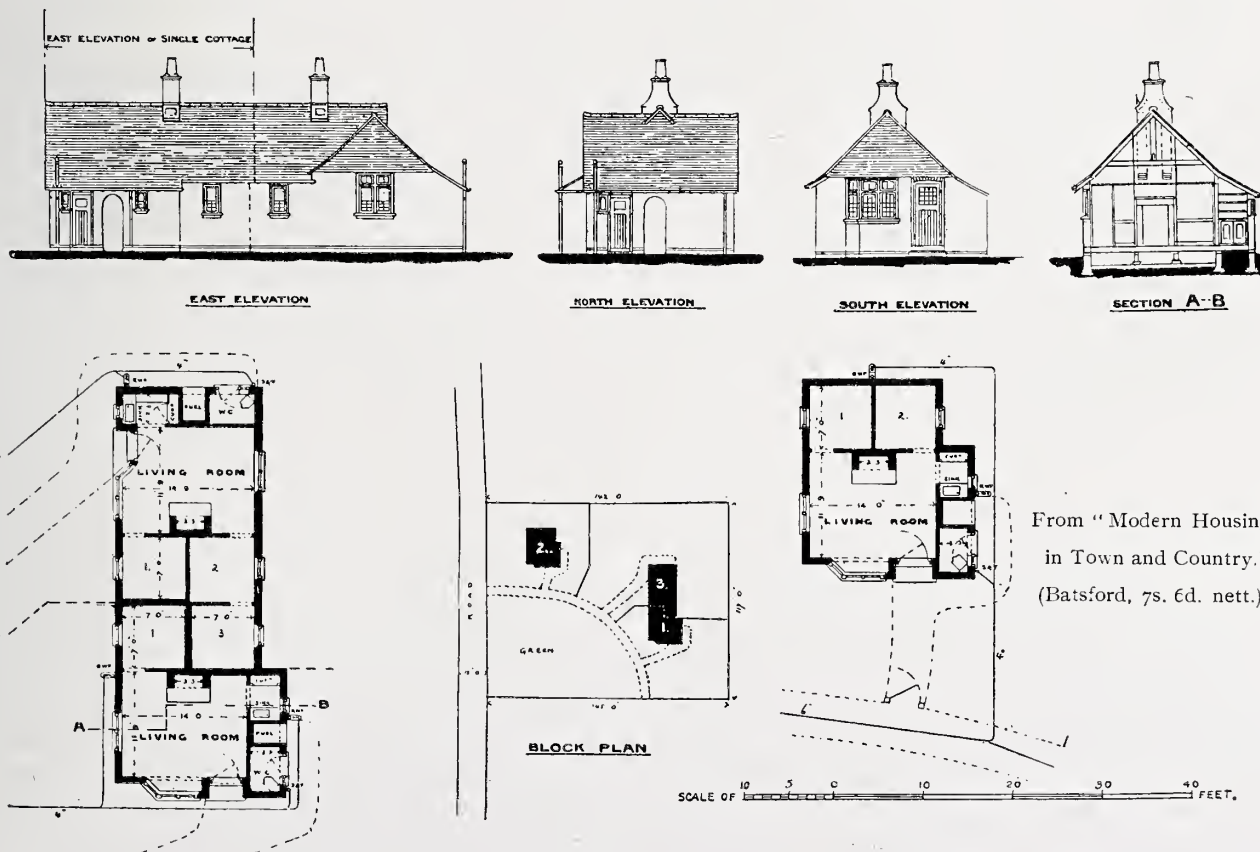
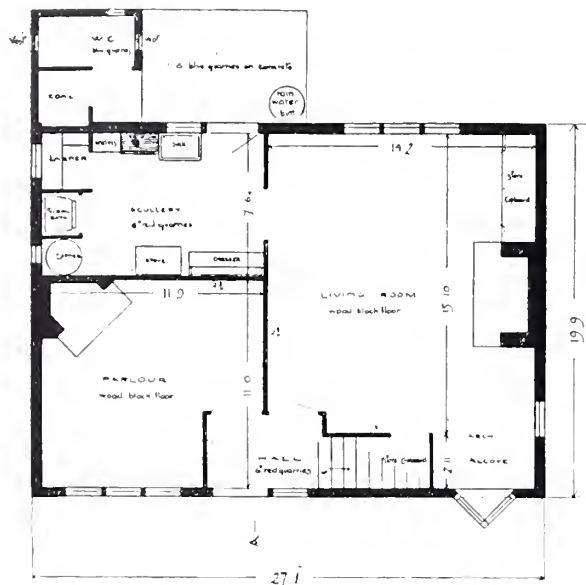
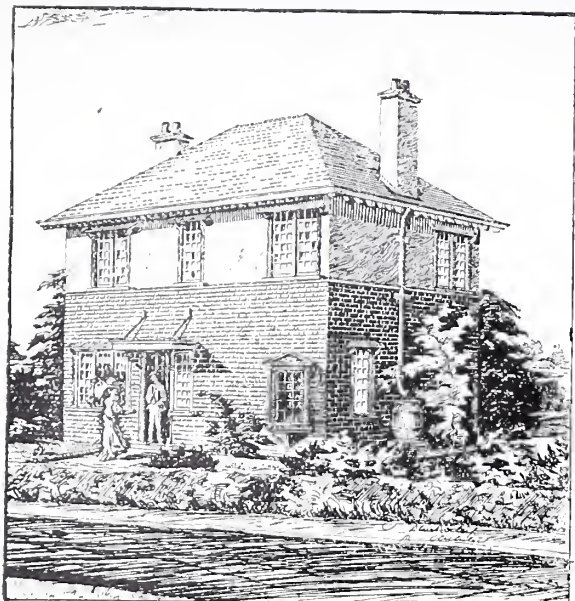
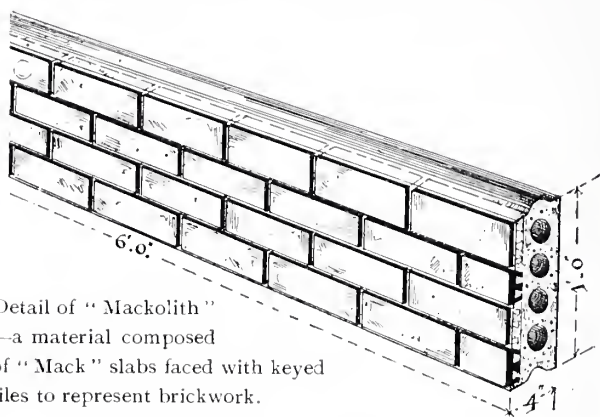


FIG. 3.—PAIR OF COTTAGES AND SINGLE COTTAGE. HENMAN AND COOPER, ARCHITECTS.



excluding wet, and are needlessly expensive. Flat roofs are not so economical as roofs of a low pitch. Tile roofs require boarding or "under-slating" paper under them, and a higher pitch than slates, and therefore are more expensive than those covered with the latter material, unless the carriage is excessive.

The grouping of rooms in a small cottage is generally a matter of dovetailing into the square



Detail of "Mackolith"
—a material composed
of "Mack" slabs faced with keyed
tiles to represent brickwork.

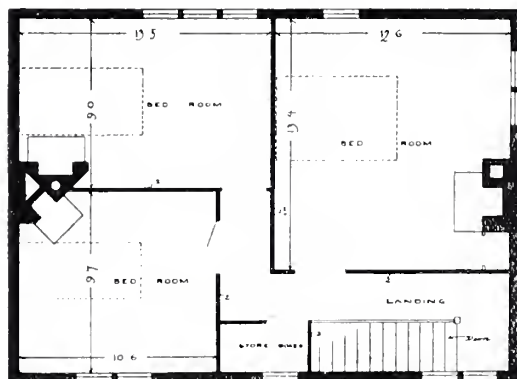


FIG. 4.—DETACHED COTTAGE CONSTRUCTED OF "MACKOLITH" TO FIRST-FLOOR WINDOW SILLS AND
"MACK" PARTITION SLABS ROUGH-CASTED ABOVE, BY J. A. KING & CO. V. DUNKERLEY, ARCHITECT.

as it should be. Of course the lower the height of rooms the less the cost of a building, and the more economical they are of fuel for warming in the winter; but to secure ventilation a certain cubical capacity is necessary, and where the area of a bedroom is as small as the minimum of 72 square feet we placed it at, the height ought to be 8 ft. 6 in. or 9 ft.

The roof, for economy, should be simple, as flat as the materials will allow, not more than 18 ft. span, and of the collar-beam pattern, which will allow rooms to go partially into the roof; if this last is desired a mansard roof is not expensive. Dormers, hips, breaks in the roofs, valleys, large overhangs, steep pitches, may be desired for picturesque effect, but they entail an increase of labour (perhaps of material also), the use of lead, under-boarding, and other means of

or rectangular shape with a minimum of passage-room or landing space. Avoidance of draught; collection of chimneys inside house or on north or other walls exposed to prevalent cold winds, in order to economise warmth; disconnection of w.c.'s or earth-closets, and of the washing-copper, to avoid vitiating the air in living rooms (placing the copper outside so as to prevent steam entering the house is also desirable); aspect, so as to secure sunlight in living rooms during a portion of the day (large windows cost no more than brickwork, and there should be plenty of light always) and exclude it from the larder; and economy of drainage, and water supply, are points to be taken into account. Plans, however, do admit of some classification.

Small cottages may be divided into two divisions: (1) those containing two bedrooms; and (2) those

with three bedrooms. Owing to the conditions of the competition (stated above), there are few examples at Letchworth that belong to the first division.

Fig. 2 is a portion of a plan of a block of four cottages designed by Mr. G. M. Crickmer, the units in which vary in accommodation, the others containing three and four bedrooms. Mr. A. H. Clough, of Burley, Hants, has also erected a cottage (No. 69), which contains similar accommodation to Fig. 1, the plans being almost identical, though by using winders in the staircase Mr. Clough has managed to save space on the landing, and so to improve on Mr. Crickmer's plan. He states the cost of erection at £100 to £110, but as Mr. Crickmer gives the cost inclusive for the block, we cannot ascertain the cost of each cottage.

Messrs. Henman and Cooper (Fig. 3) have erected a pair of cottages and a single one, which come within this division. These are, however, of the bungalow or one-floor type, and the cost is stated to average £100 per cottage, but the walls are here one brick thick, and the bedrooms are simply recesses, so their design is by no means so good as the others we have referred to. The idea of allowing a bed-recess is worthy of consideration, because in no other plan has any arrangement been made to provide for the living room being used for sleeping purposes under conditions such as have been previously referred to. I suggest that an alcove under the stairs, with an arrangement of folding doors, might be adopted so as to allow a bed to be shielded off from the living room by a curtain; these doors could be folded back for making the bed, or if the space were not required for sleeping purposes. In the exhibition of designs there is an interesting plan for a cottage with two bedrooms, erected at Peaslake, Surrey, designed by Messrs. Nicholson and Corlette, which is rather superior to Mr. Clough's or Mr. Crickmer's designs, in so far that entrance is obtained from the side into a lobby, from which the stairs rise in front,

(To be concluded.)

while a door on the one hand leads into the kitchen, and one on the other into the scullery. On the opposite side there is an open porch, with the coals on the scullery side, and an earth closet on the other side; thus these two necessary adjuncts are reached under cover from the back door to the kitchen. The bedrooms upstairs extending over the offices are consequently larger than in the two other plans referred to. It may be mentioned here that all the other drawings on exhibition are unimportant to our consideration of the problem, as they are more or less duplicated in the cottages built, or else are extravagant freaks.

Another type of cottage has been erected in Ireland with just a kitchen, pantry, and bedroom on the ground floor, and two bedrooms and a child's bedroom on the upper floor. This affords another possible variant in the way of accommodation.

The offices in a small cottage of the two-bedroom type deserve some attention. It is no doubt better to have the scullery separate from the living-room, but it is not absolutely necessary, and some designers propose a kitchen-scullery, though they then generally provide a living-room for meals, etc. A bath—which ought to be a necessity—adds to the cost, and very often becomes a receptacle for tools or filth, and takes up valuable space. It may be considered better to leave the family to provide their own zinc bath or washing tub. A larder should be provided and removed from the sink and w.c., be ventilated with a window to the open air, and face the north if possible, or, if not, the west, and be shaded from the sun. Cupboards are always useful. It is certainly inadvisable to allow a possibility of the earth-closet or water-closet contaminating the air in the house; but a covered way is desirable both to this and the coals (sufficient space should be given for wood that may be gathered on the estate, the coal, and tools and odds and ends), and if this is provided the washing-copper can be placed here so that the steam does not enter the house.

H. KEMPTON DYSON.

Competitions.

THE PEACE PALACE AT THE HAGUE.
PROGRAMME OF THE COMPETITION FOR THE ARCHITECTURAL PLAN OF THE PEACE PALACE FOR THE USE OF THE PERMANENT COURT OF ARBITRATION, WITH A LIBRARY. PUBLISHED BY THE BOARD OF DIRECTORS OF THE CARNEGIE FOUNDATION. COST, 1,600,000 GUILDERS.

ARTICLE 1.—The competition is open to architects of all nations. The Board of Directors of the

Carnegie Foundation, however, intends to invite specially some of them to compete.

ARTICLE 2.—Competitors have to take care that within seven months after the date of issue of the present programme, as expressed thereon, the following will be in the possession of the Board of Directors of the Carnegie Foundation at the Hague:—

(a) a plan showing the situation of the building with its surroundings, scale 1 : 500;



SITE OF THE PROPOSED PALACE OF PEACE AT THE HAGUE. FROM POINT B.

- (b) the ground plans of the different floors, scale 1 : 200 ;
- (c) the drawings of the four façades, scale 1 : 100 ;
- (d) two vertical sections showing: the main staircase, both the large and the small Court of Justice, and the Library (that part of the building where the books are stored), scale 1 : 100 ;
- (e) the middle portion (*travée*) of the front façade with section, scale 1 : 50 ;
- (f) a portion (*travée*) of the interior of the large Court of Justice, scale 1 : 50 ;
- (g) a drawing of the main staircase, scale 1 : 50 ;
- (h) a drawing giving a perspective view of the building and its surroundings.

The view is to be taken from the point marked O in the plan of the site which is here reproduced. This view shall be drawn on a sheet of paper, long 0.80 M., high 0.60 M. These drawings must clearly show the arrangement of the building in all its details.

The designation of the rooms must be clearly written on the ground plans in the French language ; reference to an indicating list is not allowed.

The drawing of the front façade and the perspective view must be executed in colour ; all the other drawings in black line.

No plastering is allowed on the façades.

ARTICLE 3.—Together with the plans a short explanatory notice, quite legibly written in the French language, must be sent in, and, in order to render possible correspondence with the author of the plan without knowing his name, a closed and sealed letter

mentioning his name, and bearing on the outside an address and a motto, which motto shall also figure on the drawings, on the explanatory notice, and the package.

ARTICLE 4.—The packages, containing the above-named plans and papers, that have not arrived at The Hague within seven months after the issue of this programme, will not be opened, and remain at the disposal of the sender.

ARTICLE 5.—If the author of any plan should fail to comply with one or more of the provisions of this present programme, his plan shall be excluded from the competition.

ARTICLE 6.—The letters containing the names of competitors to whom a prize has been awarded will be opened by the Jury.

ARTICLE 7.—The Jury is composed of :—

The Chairman of the Board of Directors of the Carnegie Foundation, and

MR. TH. E. COLLCUTT, *London*.

DR. P. I. H. CUYPERS, *Roermond*.

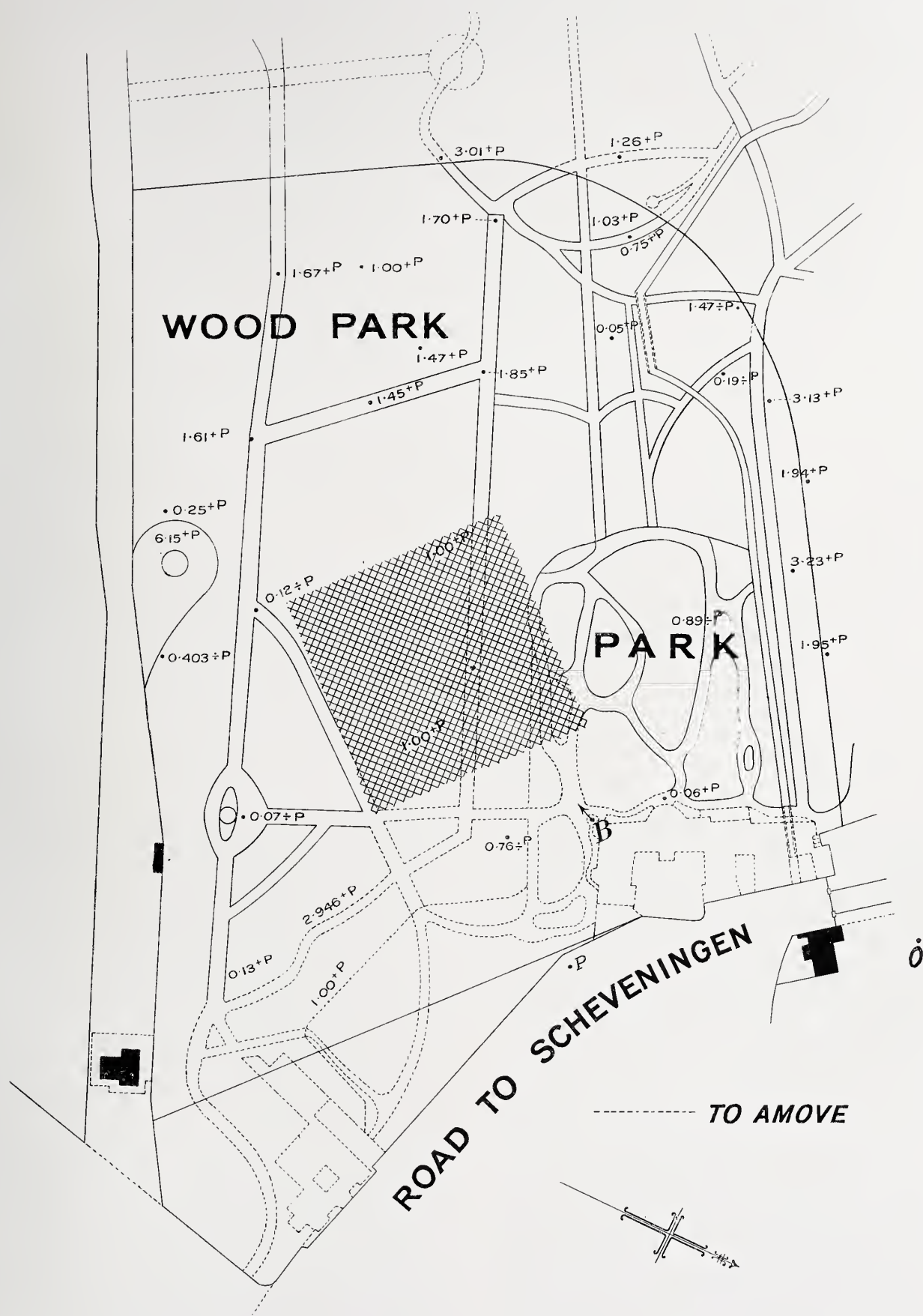
GEH. OBER-HOF-BAURAT IHNE, *Berlin*.

PROFESSOR K. KÖNIG, *Vienna*.

MR. NÉNOT, Member of the Institut de France, *Paris*.

PROFESSOR W. R. WARE, *Milton, Massachusetts*.

ARTICLE 8.—By accepting their commission the members of the Jury declare to agree fully with all provisions of this present programme and to renounce entirely to compete.



THE PALACE OF PEACE AT THE HAGUE. SITE PLAN.

NOTE.—The benchmark for the site levels is the point P on the road to Scheveningen. The levels are given in metres. The sign + P after a level figure means height above the benchmark, and the - P means level below the benchmark. No scale is given with the site plan.

ARTICLE 9.—The Jury give the preference to those projects that answer best to the requirements of this programme and excel from the point of view of art and construction.

The following prizes will be awarded :—

| | | | | | |
|---------------|---|---|---|---|------------------|
| A prize of | - | - | - | - | 12,000 guilders. |
| A prize of | - | - | - | - | 9,000 „ |
| A prize of | - | - | - | - | 7,000 „ |
| A prize of | - | - | - | - | 5,000 „ |
| Two prizes of | - | - | - | - | 3,000 „ |

ARTICLE 10.—After the publication of the decision of the Jury, all the plans sent in shall be publicly exhibited at the Hague during a month. The official report of the Jury shall also be published and deposited for inspection at the exhibition.

ARTICLE 11.—Competitors may apply for information to Mr. D. E. C. Knuttel, architect at The Hague, No. 16, Fluweelen Burgwal.

ARTICLE 12.—The projects to which a prize is awarded become the property of the Carnegie Foundation.

If the execution of a project to which a prize is awarded be entrusted to the author thereof, the amount of the prize will be deducted from his premium.

ARTICLE 13.—The building will be erected as nearly as possible at the place indicated by cross-hatching on the plan of the site here reproduced.

ARTICLE 14.—The Peace Palace shall contain the following parts :—

NOTE.—The size of the rooms given is the superficial area in square metres.

A.—COURT HOUSE.

BASEMENT STORY.

1. Dwelling of the concierge, containing four rooms and kitchen, etc., directly accessible from the park and communicating with the different stories by a servants' staircase (escalier de service).
2. Two spare rooms, sufficiently light and communicating with each other.
3. A place for the calorifères with fuel store.
4. A room for the stenographers.

Further, as far as the available space and the construction will allow, wardrobes, lavatories, etc., servants' rooms, waiting-rooms, and store-rooms.

PRINCIPAL STORY.

The floor of the principal story must not be more than 2.50 M. above the exterior ground level.

1. Great hall with main staircase.
2. Staircase leading to the basement story.
3. Doorkeeper's room.
4. Large Court of Justice, with or without an ante-room, with a removable podium and a gallery either along a side wall or at the end - - - - - 280 to 300 M²
5. Small Court of Justice - - - - - 140 to 150 M²
6. Adjoining each Court of Justice a council room, each - - - - - 40 to 45 M²
With waiting-room, wardrobe, lavatory, etc. (If the council rooms are close together, one waiting-room, lavatory, and wardrobe for both will be sufficient.)
7. Two rooms for the parties in the case, each 40 to 45 M²
8. A chancery room with a vaulted safe (2 × 2 M.) and book-lift to the upper story - 40 to 45 M²
Messengers' rooms, wardrobes, lavatories, etc.

The council rooms shall have each a separate or together one joint exit to the park, either directly or through the basement story.

UPPER STORY.

1. A room for the Conseil Administratif of the Permanent Court of Arbitration (a council room for 30 to 35 persons around a table) - - - - - about 90 M²
With an ante-room and a president's room 20 to 25 M²
2. A room for the general-secretary - - 40 to 45 M²
With a waiting-room and lavatory, etc. - 15 to 20 M²
3. Two secretaries' rooms, each - - - 25 to 40 M²
With one joint waiting-room and lavatory, etc.
4. Two rooms for clerks, each - - - 20 to 35 M²
5. One room or two communicating rooms for archives, together - - - - - about 80 M²
6. Four study-rooms, each - - - - 20 to 25 M²
Messengers' rooms, wardrobes, lavatories, etc.

B.—LIBRARY.

The Library must be built so as to form a separate part of the Peace Palace, with its own main entrance from the park and interior communication with the Court House on the principal story.

BASEMENT STORY.

1. Dwelling of the concierge, containing four rooms and kitchen, etc., directly accessible from the park and communicating with the different stories by a servants' staircase (escalier de service).
2. Store-rooms and packing-rooms.
3. Bookbinder's workshop.
4. Place for the calorifères with fuel store.
5. Spare rooms.

PRINCIPAL STORY.

The floor of the principal story must not be more than 2.50 M. above the exterior ground.

1. Doorkeeper's room.
2. The library, where the books are stored (fireproof, 10,000 M. bookshelves in five stories, lighted by windows from at least two opposite sides) - - - - - about 500 M²
3. Two reading-rooms, each - - - - - „ 60 M²
4. Adjoining an office-room for the distribution of the books - - - - - 40 to 45 M²
5. Two rooms for the librarian and sub-librarian, each - - - - - 40 to 45 M²
6. A waiting-room - - - - - about 20 M²
7. Two rooms for clerks, each - - - - - „ 25 M²
8. A room for geographical maps - - - - - „ 60 M²
9. A cataloguing room - - - - - „ 60 M²
Messengers' rooms, wardrobes, lavatories, etc.

UPPER STORY.

1. A room for the Board of Directors of the Carnegie Foundation - - - - - about 40 M²
With a waiting room - - - - - „ 30 M²
2. A chancery room - - - - - „ 40 M²
3. Spare rooms.
Messengers' rooms, wardrobes, lavatories, etc.

The Hague, August 15th, 1905.

The Board of Directors of the Carnegie Foundation.

VAN KARNEBEEK, *Chairman.*

S. VAN CITTERS, *Secretary.*

NOTE.—The measures are given in mètres, the mètre being equivalent to 39.37 English inches.

A Sketch of Irish Ecclesiastical Architecture.

III.—VAULTS, ARCHES, AND CHANCEL.

THE stone roofs of Ireland have been compared to those in Central Syria (described and illustrated in De Vogüé's *Syrie Centrale*), which are at all events earlier than 634 A.D. But the construction of the eastern examples is (except in the pyramidal roofs crowning tombs) not very similar, and they are at least not double.

Of the double stone roof the building called 'St. Columba's House' at Kells, County Meath, affords a very interesting example. Its length (internally) is 19 ft. with a breadth of 15 ft. 5 in.; it is 38 ft. high to the ridge of the roof. The walls are 3 ft. to 4 ft. thick, and the crown of the vault is 23 ft. above the floor. The building had three storeys, a wooden floor dividing the two lower ones. This is now gone, but its place is marked by a recess in the wall and by the original entrance, which was in the west wall 8 ft. from the ground, reached, no doubt, by a ladder, as in the Round Towers. The whole would form a complete monastic establishment on a small scale, at the same time admitting of passive defence—to annoy the assailants would be almost impossible, and

this is to a large extent the weakness of the Round Towers as well. The ground floor was the chapel; the altar appears to have been away from the wall towards the middle of the floor; there are recessed seats for the principal and assistant priest in the west wall. The first floor, covered by the barrel vault, would be the refectory and living room; and the uppermost storey, between the vault and the outer roof, was, no doubt, the dormitory.

This vault is of a kind which continued to be built without any important change at least down to the fifteenth or sixteenth century in Ireland (though it is not confined to that country),⁷ and it was in general constructed as follows:—A centering of the required shape was made of stones, or earth, or both—or of timber—and was covered with wattles. Upon this more or less wedge-shaped or merely flattish stones—roughly shaped perhaps, but not cut—were laid edge downwards, lengthwise to the building, smaller stones being inserted into the intervals, where necessary, so as to give the radiation, until a complete vault was formed. Upon this half-liquid mortar was poured until the

⁷ It is much used, for instance, in the Bishop's Palace at St. David's, and it is to be found also in the ruined priory at Haverfordwest.



'ST. COLUMBA'S HOUSE,' KELLS, COUNTY MEATH.



CROFT OF 'ST. COLUMBA'S HOUSE,' KELLS, COUNTY MEATH. SHOWING ARCH IN CROSS-WALL AND TRAP-DOOR.



'ST. KEVIN'S HOUSE,' GLENDALOUGH, FROM S.E.

gaps between the stones were filled; in many cases the lower face of the vault is more or less covered with the mortar—often the print of the wattles (and sometimes bits of them) can be seen in it. If this mortar was good, as it generally was, the result would be a sort of solid concrete arch; and even if the cement perished the construction was generally sound enough to hold up the vault, though a few of the smaller stones might drop through from time to time. The sides were then filled up so as to make a flat floor above; at the same time, by thus weighting the sides of the vaulting, its outward thrust was counteracted. Lastly, the propping was removed, and the wattles broken or burnt away. Above such a vault as this the high-pitched roof was built—the stones being wrought to the proper shape and simply laid one above another in mortar—and closed at the top on the inside with flags, the ridge of the roof being completed outside. This is very much like the roof of the oratory at Gallarus, though, of course, the use of mortar gives as great stability with a smaller quantity of material. At Kells this stability is further secured by carrying two walls across the top storey to support the outer roof; these are pierced in the centre by low doorways with inclined sides, which are finished above with rough but true arches constructed somewhat like the vault already described. Thus the croft, which is more than 6 ft. high in the centre, is divided into three little rooms of not quite equal length but averaging 5 ft., and is

lighted on the east by a square-headed window with inclined sides, and at the west end by two openings irregularly shaped. Beneath these is a trap doorway, built of large stones, opening through the vault, to be reached by a ladder from the first floor.

What was the history of Kells as an ecclesiastical establishment before the beginning of the ninth century (if it had one at all) is by no means clear. At that time the monks of Iona found by bitter experience that their island was terribly exposed to Danish raids, and planned to transfer the chief seat of their order to a safer place. In 804 "*Cenannus* [Kells] was given without battle to Columcille"; in 807 we hear of "the building of the new city of Columcille at *Ceninnus*"; and in 814 that the church there was completed. It is contended that 'St. Columba's House' was a part of the buildings erected at this time, and that is possible, though there are no means of proving it.

'St. Kevin's House' (or 'St. Kevin's Kitchen,' as it is called) at Glendalough is a building similar in general plan; it has a high stone roof above, a barrel-vault below, and a croft between these reached through a hole in the vault. But it has no cross-walls in the croft, and its entrance was on the ground floor—a square-headed doorway with a relieving arch above the lintel, as in the cathedral close by. The door was probably hung like a shutter outside; there were two holes in the lintel (which projects 6 in.) for hanging it, and a hole in the flag below for fixing it. We have already seen that there is a similar arrangement, but on the inside of the doorway, at Gallarus.⁸



WEST DOORWAY, 'ST. KEVIN'S HOUSE,' GLENDALOUGH.
SHOWING PROJECTING LINTEL AND RELIEVING ARCH.

⁸ See *Architectural Review*, June 1905, p. 287.



STONE-ROOFED SACRISTY, DUNMOE CHURCH,
NEAR NAVAN.

The building has a squared string-course marking the point where the roof springs from the walls. There is something similar in the cell now turned into a tool-house at Kilmalkedar, as well as in St. Mary's Church at Glendalough. It had two windows, one above the other, in the east wall (besides that which lights the croft), the upper one is a square-headed slit, the lower one was round-headed; and there was a large window (a later addition) in the south wall. But the whole has been much altered and added to. It has been thought that parts of the masonry below are the remains of a still earlier building. And to the 'House' or oratory a stone-roofed chancel was added (the spring of its barrel-vault is still very plainly to be seen), the east wall being simply cut through so as to form a semicircular-headed opening, though no real arch was constructed there. This destroyed the lower part of one of the east windows, and the top of it was then filled up. On the north side of the chancel was built a stone-roofed sacristy, which still remains, though the chancel was destroyed early in last century; neither of these has been bonded into the older building.

A sacristy (called in Irish *erdam*, *irdom*, that is to say, 'side-house') was in many cases attached to Irish churches from very early times. One is mentioned, under the description of *exedra*, *quæ oratorii adhærebat parieti* and of *exedriolæ separatæ conclave*, in Adamnan's *Life of St. Columba* (iii. 19) as existing at Iona in the saint's lifetime—that is, by 597 A.D. "The great gospel of Columcille [the Book of Kells] was stolen at night from the western sacristy of the great church of *Cenannus*" in 1006 A.D. Such sacristies continued to be built, and there are a good many examples

remaining in Ireland, which are often set at right angles to the church, on one side or the other, like a transept, constructed of stone, and frequently roofed with the same material—such as that attached to the chancel at Clonfert, to one of the churches at Lorrha, near Portumna, to the little church adjoining Dunmoe Castle, between Navan and Slane (this sacristy, most exceptionally, has a crypt underneath), as well as at Clonmacnoise, on the south side of the cathedral, where, above the stone vault, there are domestic buildings with a conspicuous chimney. These are of Gothic character, but it is quite probable that an earlier structure is represented or included; the cathedral would doubtless possess a sacristy from the first.

To 'St. Kevin's House' a Round Tower of different masonry has been added, crowning its west end. The cap of this reaches a height of 40 ft. from the ground. There are three holes in the vault below it for bell ropes, and windows to let out the sound. The name of the building suggests that it represents (or was held to represent) the original cell or oratory of the saint, like 'St. Declan's House' at Ardmore.

There are a good many later examples of the double stone roof in Ireland. About these something will be said presently. It is probably an Irish invention—a very successful combination of the true arch or vault, learnt from abroad, with the native stone roof. The very high pitch of the roof (about 65°) may have been intended to give dignity to these buildings, but it is safer construction as well, and certainly tends to keep



CHANCEL ARCH, KILLINEY, NEAR DUBLIN.



CHANCEL, TRINITY CHURCH, GLENDALOUGH.



CHANCEL, TRINITY CHURCH, GLENDALOUGH.

them dry; the bedding of the stones at an angle and avoiding continuity in their joints serve the same end.

It appears to be practically certain that the Irish had begun to build stone churches with mortar before structural chancels had been accli-

matized in Ireland. One instance of a chancel being added to an older building has just been mentioned. The cathedral at Glendalough supplies another—the chancel is not only of different masonry from the nave, but is not bonded into it. The chancel of St. Caimin's Church, Iniscealtra,

CATHEDRAL, GLENDALOUGH, SHOWING ANTAE
AND RELIEVING ARCH OVER LINTEL.

WEST DOORWAY, REEFERT CHURCH, GLENDALOUGH.

is clearly much later than its nave.⁹ And to many churches no chancel was ever added. Probably the most important of these is the cathedral at Clonmacnoise, which, with all the alterations which it has undergone, has never had a chancel, except such as was made by groining over the east end in the fourteenth century. On the other hand, some quite small churches were provided with one. A tiny church close to 'St. Kevin's House' has a chancel measuring 8 ft. to 9 ft. square inside. But, though chancels came in later than stone churches built with mortar, there had been no very marked change of style in the meantime. The square-headed east window and west doorway and the chancel arch, with inclined sides, at Killiney all have a very primitive appear-



REEFEART CHURCH AND CHURCHYARD, GLENDALOUGH.



GATEWAY TO MONASTERY, GLENDALOUGH,
SHOWING ANTAE.

ance. Trinity Church, Glendalough, (which at an earlier time was probably called 'St. Mochuarog's,')¹⁰ built of mica-slate with blocks of granite in its walls and granite quoins, and with a perfectly plain arch of squared granite on the two faces and rubble between, has a triangular-headed window in the south side of the chancel, and its original west door, square-headed, with inclined jambs, is much like that at Dulane. The church has small brackets projecting from the walls, east and west, at the spring of the gable, probably for supporting an overhanging wooden roof—this feature is also found at Reefeart Church, Glendalough. A Round Tower standing upon a square base and over a barrel vault was a later addition to its west end. This church is particularly impressive from its excellent construction and its massive simplicity. It has no ornament (unless a plain horizontal drip-stone over the east window can be considered

such), and looks just like Roman work, built for practical purposes. So too the arches of the gateway to the monastic precincts of Glendalough¹¹ bear a strong resemblance to the Roman gate at Lincoln. (The outer arch, like a church door, has *antae* on each side of it.) Reefeart Church, a little way up the valley, is striking in a similar way. Like the entrance to the monastery, it needed some rebuilding (out of the original stones) in the latter part of last century. The ornament round its square-headed west doorway has never been completed. Reefeart was, as the name implies, a royal burial-place, but its churchyard has not now the reputation for sanctity which centres round the cathedral of Glendalough, and crowds the ground there (as at Clonmacnoise) with modern graves; consequently very many of its crosses and



CHANCEL ARCH, REEFEART CHURCH, GLENDALOUGH.

⁹ In these the details of the chancels are Irish Romanesque; but it is of course possible that chancels already existing may have been more or less completely re-built.

¹⁰ See *Architectural Review*, August 1905, p. 73.

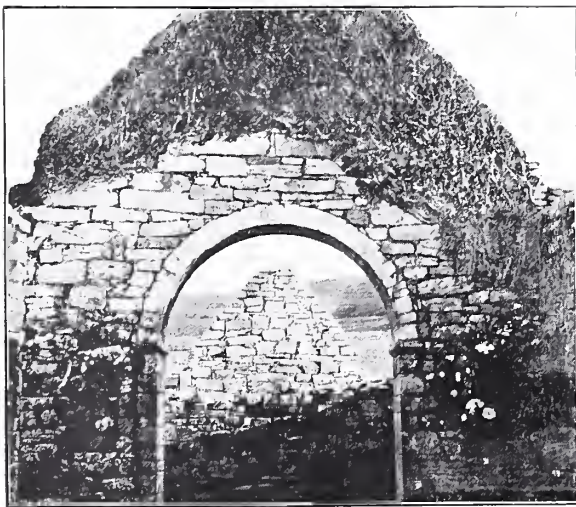
¹¹ These supported a tower, part of which was still visible in 1795. See Fisher's *Scenery of Ireland*.



CHANCEL ARCH, TEAMPULL NA NEAVE, INCHAGOILL.

gravestones have been preserved, more or less in their original position, as is the case too in a cemetery on Iniscealtra. Some date like the eleventh century (which was, owing to its comparative peacefulness, a great time for building and rebuilding churches in Ireland) seems to fit Reefeart and Trinity Church; they show thoroughly workmanlike construction in stone, but not a trace of Norman influence. However, this is perhaps assuming an answer to the question as to the date of Irish Romanesque—on which something must be said presently—and there appear, in any case, to be no means of fixing their date with certainty.

The arches mentioned so far are not only perfectly plain, but do not spring from capitals or from imposts. "A projecting unsquared block of stone inserted between the top of the shaft and the spring of the arch in the rude church of Kilmacduach, in Aran, is," says Miss Stokes, "the first indication we have met of an impost being thought desirable." At *Teampull na Neave*, on Inchagoill, an island in Lough Corrib, the impost is squared—it is very much like a bit of the string-course marking the junction of roof and walls in 'St. Kevin's House.' At Ought Máma, County Clare, it is chamfered. This is a natural course of development; but it does not of course follow



CHANCEL ARCH, OUGHT MÁMA, COUNTY CLARE (?).



CHANCEL ARCH, FRIARS' ISLAND, NEAR KILLALOE.

that those particular churches were built in that order.¹² The arches sometimes have a rather loose connection with the wall which they support. At the small church on Friars' Island, near Killaloe, the little chancel arch is greatly set back from the jambs (a similar feature at St. Mary's, Wexford, is depicted in Grose's *Antiquities of Ireland*). This form of arch is used as the frame or niche to a picture, probably of an Evangelist, in the Book of Kells (which is believed to date from about 700 A.D.¹³), and it may have been copied by the architect from this or some similar MS. Few will consider the building to be the prototype of the drawing. There are architectural ornaments in the Book of Kells which have no counterpart in actual Irish architecture—notably, one showing the sort of squared flower-pot above the capital, which is really a fragment of entablature

(something like that which Caryatides support), though it looks like an extra capital. This occurs in the churches of Central Syria (illustrated by De Vogüé) and in the church of St. Lawrence, outside the walls of Rome, but there seems to be nothing like it in Irish architecture, which is not too fond of having even a single distinct capital to a column.

ARTHUR C. CHAMPNEYS.

(To be continued.)

NOTE ON ILLUSTRATIONS.—The name of a church illustrated on p. 124 has become illegible on the photograph. I believe it to be that at Ought Máma; at all events the picture represents the chancel arch there in all essential particulars. This view is from a photograph by Messrs. Langfier, of Bond Street; that of *Teampull na Neave* is by Messrs. Welch, of Belfast. The rest are from photographs taken by the writer, developed and printed by Messrs. Seaman, photographers, Ilkeston.

¹² *Teampull na Neave* is in the main an Irish Romanesque Church; but early features are frequently continued or reproduced in later Irish architecture.

¹³ Though some place it even as much as a century later.

Ownership of Architects' Plans.

AN architect enters into an agreement to build a house and to design the necessary plans. To whom do the plans belong in the absence of express agreement? This is, to architects, an important question, and all the more so that the law of England at the present moment appears to be against them.

It is naturally a well settled rule of law that if one employs another to do work and pays for it, the results of that work belong to the employer, and this would be the rule to govern the question of the ownership of architects' plans, were it not for an alleged special custom that the plans shall remain the property of the architect.

There is an elementary rule of construction that a written contract cannot be extended or varied by evidence of matters outside the written words of the contract. To this rule there is the following exception:¹ "Where the contract is silent, parol (or verbal) evidence is admissible to show a custom; . . . but both parties must be cognisant of such usage, so as to be presumed to have contracted with reference to it, and the custom must not contradict the contract, and further, the custom must be reasonable." Thus the architect has three lines of defence to overcome. Firstly he must prove that there is a custom, secondly that the building owner knew of it, and thirdly that the custom, even if it exists, is reasonable. The first of these obstacles presents some difficulty. The

custom was actually found to exist in 1870 by the verdict of the jury in *Ebby v. McGowan*, yet an architect gave evidence in that case that there was no such custom, and the Court before which the appeal came threw considerable doubt on the correctness of the verdict.

But assume that the architect succeeds on the first two points, even then, if a recent decision of the Court of Appeal is correct, he fails on the third; for the custom is said to be unreasonable. The courts of law appear to look with some suspicion upon special customs in general and on the customs of architects in particular. In the case of *Gwyther v. Gaze* in 1875,² an architect was employed to build a warehouse and shop. Three tenders were sent in, but none were accepted, and the building owner employed another builder without a contract, paying for the work as it progressed. The architect claimed a payment of 2½ per cent. on the lowest tender, alleging that this was, by the usage of architects, the proper charge: the judge, however, held that the custom was unreasonable, and refused to follow it in assessing the payment due. So also a usage for contractors to rely on the specification furnished by the building owner's architect without examining it was held to be bad,³ and also in America a custom among architects to charge for preliminary sketches a sum representing more than the time actually spent in preparing them.⁴

¹ Building Contracts, Vol. I. p. 137.

² *Times*, Feb. 8, 1875; 2 Hudson 16.

³ *Thorn v. Mayor of London*, 1 A.C. 120.

⁴ *Scott v. Martin*, 56 A.M. Rep. 402.

All the authority directly on the question of the custom to retain plans is dead against the architect. In 1870, in the case of *Ebdy v. McGowan*⁵ above referred to, the Exchequer Court decided that when the architect has been paid he must hand over the plans: there were, however, special facts in this case, and the decision may not have been meant to be of universal application. A clergyman asked an architect to prepare plans and specifications and get tenders for the erection of a vicarage house and other buildings; if the buildings were completed, the architect was to get 5 per cent. on the total expenditure; if tenders were given and the work commenced, 3 per cent. on the estimated value: if plans only were drawn and no building done he was to be paid 2½ per cent. on the estimated value. The building was never commenced, and the clergyman claimed to have the plans handed over to him: but the architect relied on the supposed special custom and refused to part with them. The Court decided against the custom, but chiefly on the ground that in this case the clergyman would get nothing for his money if he did not get the plans. Lord Chief Baron Kelly condemned the custom in these words: "It appears contrary to reason, good sense, and justice that in the event of a contract being put an end to, the architect should retain the plans for which he was entitled to be paid . . . the execution of the plans themselves formed the work and labour for which he charged the defendant." And Baron Bramwell condemned the custom with the somewhat exaggerated metaphor, that the custom was perfectly suicidal; so soon as it was brought into being it cut its own throat with its own absurdity.

American⁶ and Canadian⁷ courts have also decided against this custom, and if the architect turns for comfort to the similar customs of other professions he is met by the same uncompromising denial. Estate agents have claimed to retain plans, and solicitors their rough drafts, but both have been defeated. The decision against estate agents was based upon broad principles of the law of agency. In *Lady Beresford v. Driver* (1852),⁸ land agents were employed by Lady Beresford's husband for many years to survey and collect the rents of her estate at Waterbeach. Lady Beresford afterwards ceased to employ them and demanded delivery up of all papers, plans, and documents connected with the estate. The agents, however, claimed to retain certain rough maps, plans, and notes made by them for their own convenience in connection with their work of sur-

veying the estate. It was held that all these documents having been made by them while acting as agents for Lady Beresford and her husband must be given up to her.

The solicitor's case is *Ex parte Horsfall*⁹ (1827). One Lythgoe had been employed for several years by the plaintiff's father as his solicitor. On the death of her father the plaintiff applied to have all deeds and papers in Lythgoe's possession delivered up to her, and offered to pay his bill of costs. Lythgoe delivered up all the original deeds and documents, but claimed a right to retain the drafts and copies. In this claim he was defeated.

In spite of these adverse decisions it seems still to have been the general view of architects that where a building is actually completed the plans belong to the architect, and the recent decision of the Court of Appeal in *Gibbon v. Pease*¹⁰ has come upon them as an unwelcome revelation. The facts are stated in the report as follows:—

The plaintiff was the owner of certain houses in Bayswater, which he was desirous of converting into residential flats. The defendant was an architect and surveyor, and was employed in that capacity by the plaintiff upon the work necessary to the contemplated alteration of the houses, on the terms that the defendant should receive for his services five per cent. on the contract price of the works to be executed. The defendant prepared plans and specifications and superintended the work, which was completed. The plaintiff paid to the defendant the stipulated fee, and claimed to have the plans and specifications handed over. This the defendant declined to do, and this action was brought to recover possession of them. At the trial evidence was tendered on behalf of the defendant of a custom under which an architect in circumstances like those of this case was entitled to retain the plans and specifications as his own property. The learned judge refused to admit the evidence, being of opinion that the custom proposed to be established by the evidence was unreasonable, and judgment was entered for the plaintiff.

The defendant appealed.

The Court of Appeal decided that the custom, even if proved, would be unreasonable, and therefore bad. They expressly followed *Ebdy v. McGowan*, and refused to see any distinction between the two cases. Lord Justice Cozens-Hardy also relied on the solicitor's case, *Ex parte Horsfall*.

⁵ Hudson, Vol. II. p. 7; *Times*, Nov. 17, 1870.

⁶ *Kults v. Pelby*, 37 Mass. 65.

⁷ *Moffatt v. Scott*, 8 Lower Canada, Jur. 310.

⁸ 20 L.J. Ch. 476, 22, 407.

⁹ 7 B. & C. 528.

¹⁰ 1905, 1 K.B. 810.

These authorities, as they stand, are absolutely fatal to the architects' custom. It is still possible, however, that "*Gibbon v. Pease*" may be overruled by the House of Lords, and it is therefore interesting to analyse the previous authorities and consider whether upon principle the recent decision is justified.

Ebdy v. McGowan is not likely to be set aside after thirty-five years, even by the House of Lords; but it is not by any means conclusive. The building in that case was not even commenced, and all the judges rely upon that fact as the basis of their decision: the argument pervades the whole of their judgments that if the building owner did not get the plans he would get nothing for his money. American and Canadian cases are not binding in this country, and need scarcely be considered for this purpose, and the decisions against the estate agents and solicitors really raise quite different points. An estate agent is a general agent, employed to manage an estate, and, in consideration of the commission paid him, to do everything necessary for the proper conduct of the estate; all acts, therefore, that he does, he does as agent for the owner, and he would have no power or authority to do them if he were not acting as such agent. It is reasonable, therefore, that the employer should be entitled to the results of all that is done. Again, a solicitor's bill of costs is quite a different matter from an architect's contract. A client who requires a deed is charged in the bill of costs separately for the drafting of the deed, and separately also for the engrossing, and for any additional copies that may be required. Here, too, it would be unreasonable that the client should be refused possession of documents, for each one of which he has specifically paid; and Lord Tenterden expressly decided the solicitor's case on the ground that "He who pays for the drafts by law has a right to the possession of them."

An architect, on the other hand, is employed to build a house, and is not paid by the number of plans he draws. Suppose a plan drawn and completed, which then fails to satisfy the architect himself; he draws another, and the building is completed according to the latter. Could it be reasonably contended that the first plan is the property of the building owner, because the architect had that owner's house in his mind when he prepared it? If not, then it seems to be the house and not the plans for which the architect is paid.

In the judgment of *Gibbon v. Pease*, the contract was compared to a commission given to an artist to paint a picture; but the true inference from that comparison seems to have been overlooked. In such a comparison the building really corresponds to the picture, and the plans to rough

sketches made by the artist. It may possibly be the law, but it certainly is not the everyday practice, for an artist to hand over to the purchaser of a picture all the rough sketches or studies on which the picture is based. In fact they are practically always retained, and are freely used by the artist if occasion requires.

The only reference to abstract principle and common sense to be found in the judgments is contained in a passage from the judgment of Cozens-Hardy, L.J.: "Unless he (the building owner) has the plans, how is he to know where the drains, the flues, and many other things are?" It is doubtful whether this would prove a serious objection in practice, most of such items being apparent on the face of the building, and it is probably very seldom that the plans are used for this purpose. The fact alone that the owners have in the past overcome such difficulties without the plans seems to show that it cannot be a matter of any great importance.

For the present moment, however, the law is against the architects. Even so there is no real cause for dismay. A little extra care in the original contract would avoid all the evil effects of these decisions. So long ago as 1870 Lord Bramwell stated in open court that the question could not be said to be one governing the future, because the parties to contracts might make their own bargains. Where the warning of so great a judge has been neglected it can hardly be hoped that this article should have a better fate, but it cannot be too strongly pressed upon the notice of architects that the remedy lies in their own hands. The architect should expressly reserve to himself the ownership in the plans drawn by him as one of the terms of every contract into which he enters. The reply will probably be that architects do not as a rule make formal contracts, but set to work on their commissions with no other evidence than the letters between the parties. If so, the remedy is simpler still; a printed note on the writing paper used by the architect for professional purposes would be effectual to give him all the protection he needs.

Again, the right of the architect to make and keep copies of his plans is not affected by these decisions. Whether the expense of taking copies of the plans prepared would be too great to justify the practice is a question for the architect himself; but, if not, again the remedy is simple; for although the question of copyright in plans is implicated in perhaps the most chaotic branch of English law, the better opinion seems to be that the copyright in the plans is vested in the architect, and he would therefore be at liberty to retain and use copies of them. A "plan" is a "book" for the purposes

of the Copyright Act, 1842;¹¹ the copyright of a book is the property of the author and his assigns;¹² and an assignment must be in writing. Therefore it would appear that unless the copyright in the plan is assigned to the building owner in writing, it remains the property of the architect. There is, however, a complicated section of the Act which contains these words: "Where any person . . . shall be the proprietor of . . . any book . . . and shall employ any person to compose the same . . . on the terms that the copyright is to belong to the proprietor, it shall belong to the proprietor."¹³ The terms referred to in the section need not be expressed, and it is a question of fact in each case whether they are to be implied. In the case of articles written for a magazine, it has been recently decided by the House of Lords that mere payment by the proprietor of the magazine raises the presumption of an agreement under sec. 18 that he is to have the copyright.¹⁴ The wording

of this section appears at first sight to apply equally to the building owner, for he is by the decisions under discussion the owner of the plan or "book." The decision, however, is based on the argument that if the proprietor of the magazine did not get the copyright, it would be impossible for him to get any return for his outlay; an argument which could not be applied in the case of architects' plans. Consequently, even if the adverse decisions stand, and no express contract is made, an architect would probably be within his rights in making for his own use and retaining copies of plans.

Whether architects as a body should rely on these suggested methods of evading the law, rather than boldly endeavour to turn the law in their favour, is a question for their own pockets. It is, perhaps, only right to conclude with the warning that in the bold endeavour they would by no means be certain of success.

ALFRED F. TOPHAM.

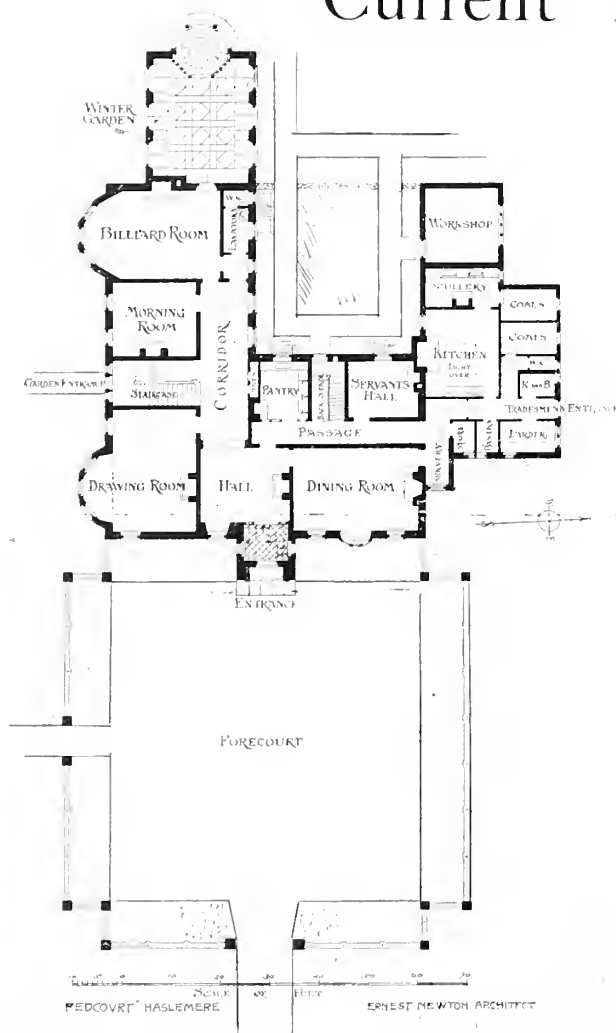
¹¹ 5 & 6 Vic. c. 45, sec. 2.

¹² Sec. 3.

¹³ Sec. 18.

¹⁴ Lawrence & Bullen, Ltd. v. Affalo (1904), A.C. 17.

Current Architecture.



"REDCOURT," HASLEMERE.—This house is built of red Wrotham brick and roofed with red Wrotham hand-made tiles. The stone is Portland. All the cast lead was made by Messrs. Wenham & Waters, of Croydon; Messrs. Maides & Harper, of Croydon, were the builders; and Mr. Ernest Newton was the architect.

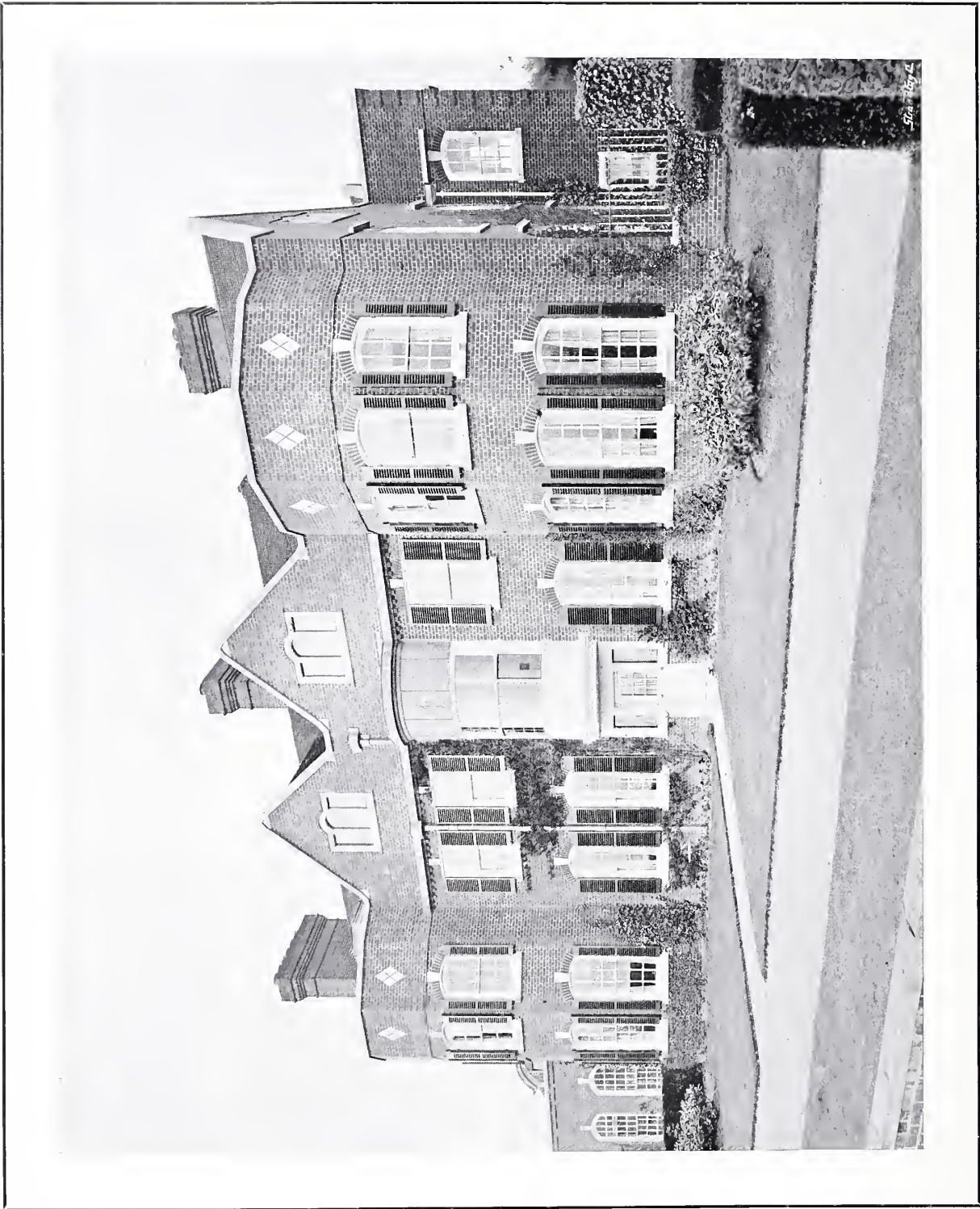
WEEK-END COTTAGE FOR MR. CLEMENT K. SHORTER AT GREAT MISSENDEN, BUCKS.—This cottage, which commands most beautiful views to the south, is built at the edge of a large beech wood at the head of the Missenden valley. With the exception of gables and chimneys there is no external brickwork above the first floor level. The bricks are local, of blue, grey, and red tints. The gables are covered with weather-boarding painted green, the roofs with hand-made Bedfordshire tiles. The total cost of the building worked out at less than sixpence per foot cube. The photographs are by the architect, Mr. Timothy Honnor, A.R.I.B.A., of London.

CHURCH OF ALL SAINTS, KENSINGTON.—The building in its present state is very incomplete. It is designed to have double aisles on the unfinished side, thus filling the whole of the site



Photo: E. Duvée.

"REDCOURT," HASLEMERE.
ERNEST NEWTON, ARCHITECT.



"REDCOURT," HASLEMERE. GARDEN FRONT.
ERNEST NEWTON, ARCHT.

Photo: E. Dockree.

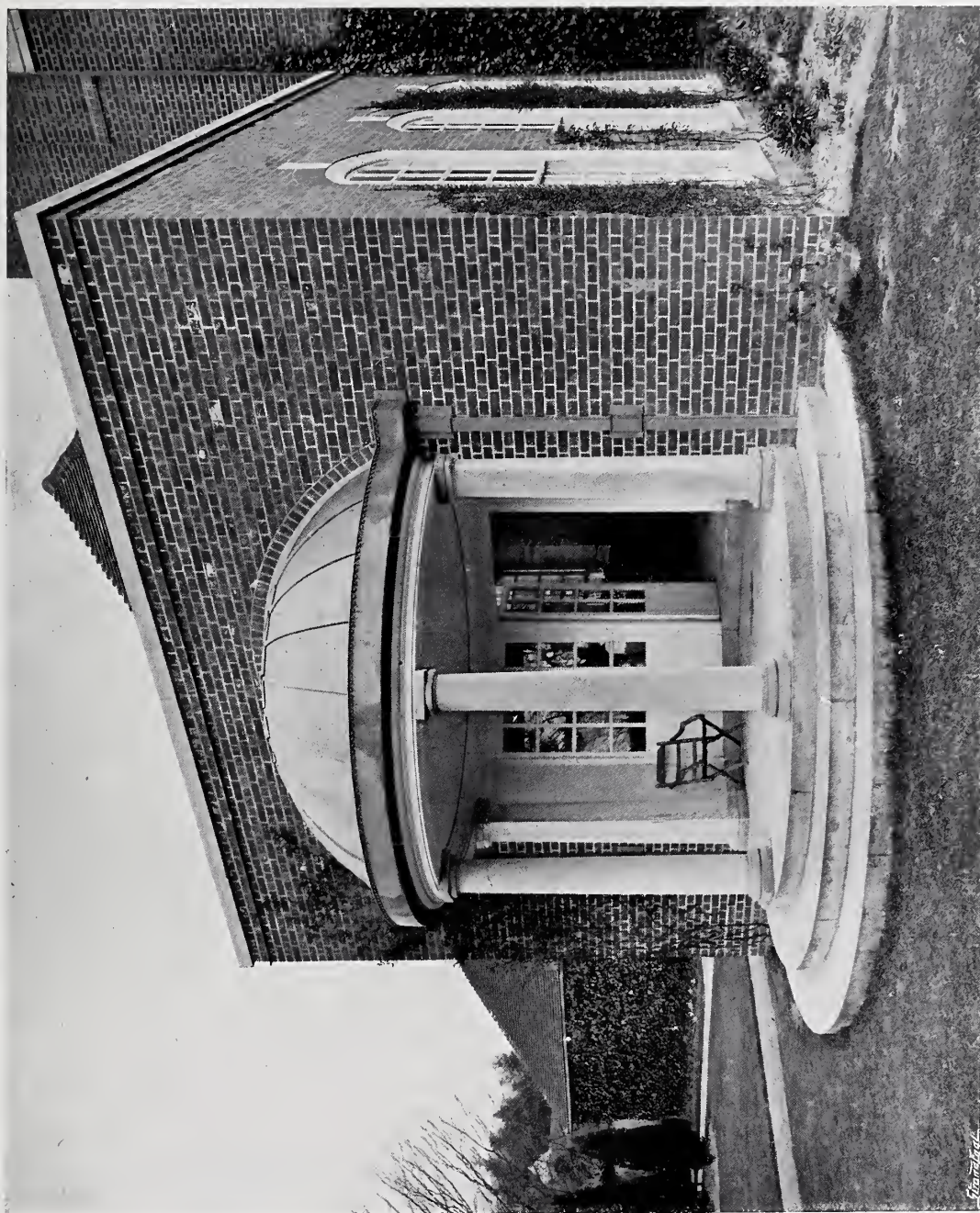


Photo: E. Dockree.

"REDCOURT," HASLEMERE. PORCH TO THE WINTER GARDEN.
ERNEST NEWTON, ARCHITECT.



Photo: E. Dockree.

"REDCOURT," HASLEMERE. THE ENTRANCE.
ERNEST NEWTON, ARCHITECT.

NOTE.—The sunblind boxes over the windows were added subsequently.

available. These aisles will have stone arches across them acting as abutments to the somewhat lofty walls, and they will have painted roofs. The intermediate aisle will be arranged as a chapel. There will be a row of large windows in the wall of the outer aisle, while the middle aisle will be with only its end window. The effect of light and shade will thus be a feature of the building. The contractors of the part built were Messrs. Stevens & Bastow. The painting was carried out from the architect's design by Mr. Jackson, of Ealing; and the oak-work of the chancel seats

and desks by Mr. Kett, of Cambridge. The hangings were from Messrs. Watts, of Baker Street. The whole has been carried out from the designs of Mr. G. F. Bodley, R.A.

PANELLING, ETC., FROM WINCHESTER COLLEGE CHAPEL.—We publish three photographs of some interesting carving and panelling which has recently been refitted in the Hall at Hursley Park for Sir George Cooper, Messrs. A. Marshall Mackenzie & Son being the architects. Concerning this panelling, Messrs. H. H. Martyn



Photo: E. Dockree.

"REDCOURT," HASLEMERE. DINING-ROOM CHIMNEYPIECE.

ERNEST NEWTON, ARCHITECT.

& Co., Ltd., send us the following particulars: "It was originally removed from Winchester to make more room in the Chancel—so we are given to understand by some old Winchester boys—but there seems no reason to doubt that it was removed to give place to the architect's pre-disposed liking for what may be termed Gothic type of work. Originally it was sold by the authorities for something like £50, and soon afterwards changed hands for £500. It was then purchased by Lord Heytesbury for something like double the amount, afterwards being

sold to some London architects at a considerable profit, who entrusted the restoration of the work to us at a cost of something like £1,000. It ultimately sold from our works for the sum of 30,000 guineas. We are afraid this deals too much with the commercial side to be of interest to you and your readers, but it undoubtedly shows the craving for anything in the way of antique work; and, of course, the fact of this being attributed to Grinling Gibbons has given it this fancy value. It will, perhaps, be of interest to some of your readers to know that underneath a piece of



Photo: E. Dockree.

"REDCOURT," HASLEMERE. THE HALL.
ERNEST NEWTON, ARCHITECT.



Photo: E. Dockree.

"REDCOURT," HASLEMERE. THE DRAWING-ROOM CHIMNEYPiece.
ERNEST NEWTON, ARCHITECT.

*Photos: T. Honnor.*

A WEEK-END COTTAGE AT GREAT MISSENDEN, BUCKS.

TIMOTHY HONNOR, ARCHITECT.

The image displays two architectural floor plans for a house, labeled "GROUND FLOOR PLAN" and "FIRST FLOOR PLAN". A scale bar at the bottom indicates measurements in feet, ranging from 0 to 30. The architect's name, "TIMOTHY HONNOR, ARCHT.", is printed at the bottom right.

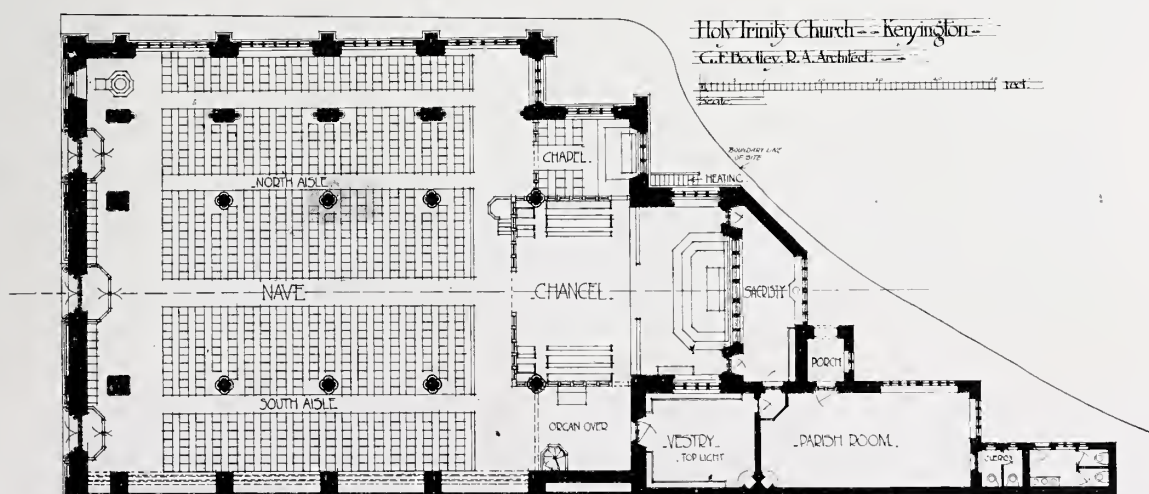
GROUND FLOOR PLAN: This plan shows a symmetrical layout. At the top are two "BAY" windows. The central area is divided into a "LIVING ROOM" on the left and a "DINING ROOM" on the right. A "COALS" closet is located outside the dining room. The bottom section contains a "HALL" with a "HATS" closet, a "KITCHEN", and a "LOBBY" with a "STORE" closet. A "BATH" is located near the hall.

FIRST FLOOR PLAN: This plan shows a symmetrical layout. At the top are two "BAY" windows. The central area is divided into two "BEDROOM"s. A "HALL" connects these rooms to a "BATH ROOM" and a "BEDROOM" at the bottom. A "BOXES" closet is located near the bottom right bedroom.

0 5 10 20 30
SCALE OF FEET.

TIMOTHY HONNOR, ARCHT.

or two frames were missing. With regard to the swags oak panels: although these are in many pieces, a large proportion of them were restored with very little addition; this also applies to the wreaths over drops, the drops themselves being in much the same condition. In one or two instances we have had to put complete new pieces to complete the drops. We think it would be of interest to your readers to try to recognise which is new and which is old. Now it is fixed and all toned down, we do not think even the proprietors who purchased the work could recognise one frame from the other. The altar rail was in a very fair condition, very little of it being missing. Perhaps the most remarkable portion of this is the centre style where only half of these narrow panels were left, and it took a very considerable time to work out how that could possibly have been intended in the first instance; but we cannot believe that it could have been otherwise than as shown in the photographs."



*Photo : Cyril Ellis.*

ALL SAINTS' CHURCH, KENSINGTON. THE FAÇADE.
G. F. BODLEY, R.A., ARCHITECT.



Photo : Cyril Ellis.

ALL SAINTS' CHURCH, KENSINGTON. INTERIOR LOOKING WEST.
G. F. BODLEY, R.A., ARCHITECT.



Photo: Cyril Ellis

ALL SAINTS' CHURCH, KENSINGTON. CHANCEL AND SANCTUARY.
G. F. BODLEY, R.A., ARCHITECT.



Photo: Cyril Ellis.

ALL SAINTS' CHURCH, KENSINGTON. SOUTH AISLE.

G. F. BODLEY, R.A., ARCHITECT.

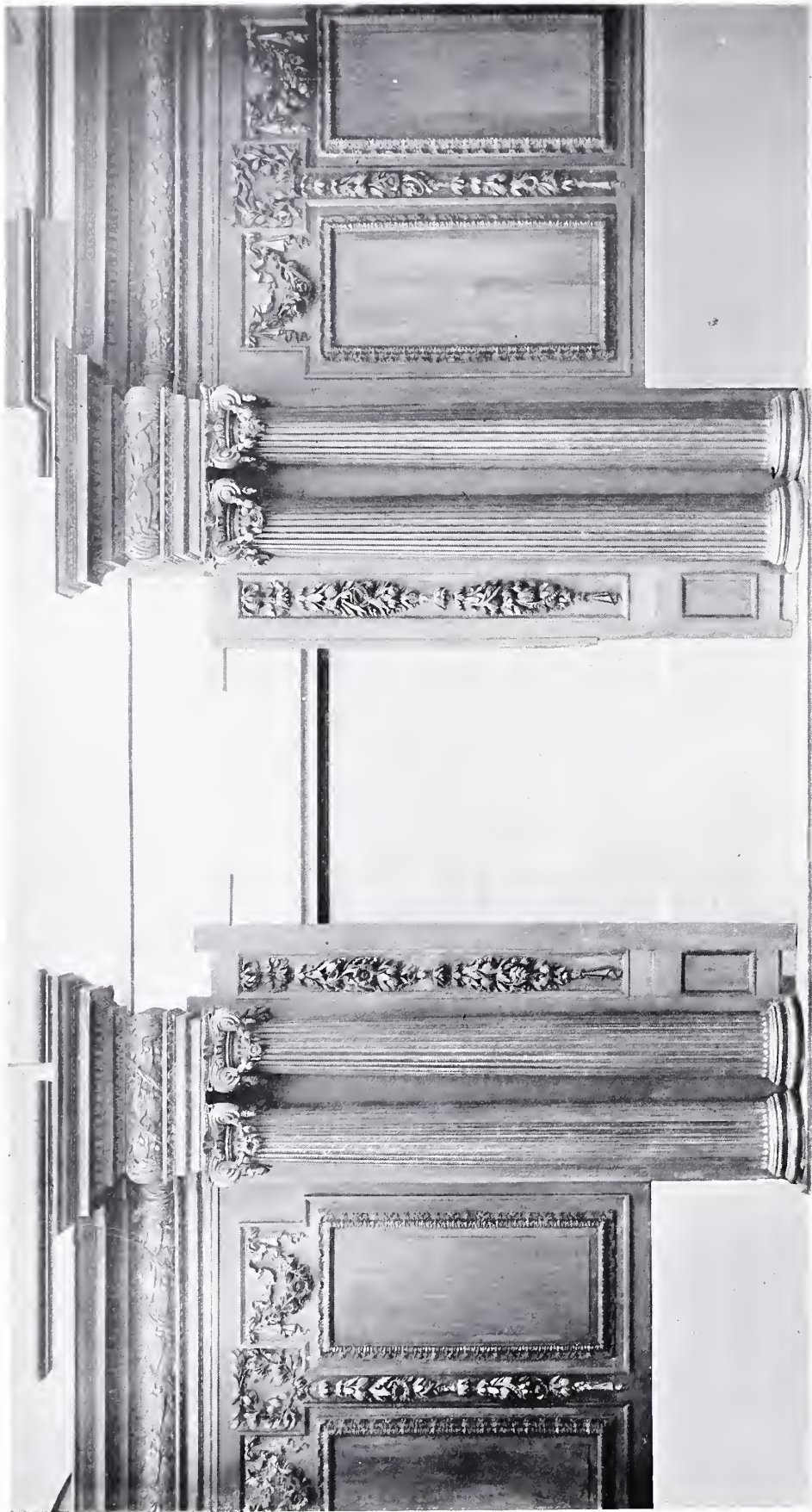


PANELLING AND CARVING FORMERLY IN WINCHESTER COLLEGE CHAPEL,
NOW REFITTED IN THE HALL AT HURSLEY PARK.

See Notes, page 132.



PANELLING AND CARVING FORMERLY IN WINCHESTER COLLEGE CHAPEL,
NOW REFITTED IN THE HALL AT HURSLEY PARK.



PANELLING AND CARVING FORMERLY IN WINCHESTER COLLEGE CHAPEL,
NOW REFITTED IN THE HALL AT HURSLEY PARK.

THE ARCHITECTURAL
REVIEW, OCTOBER,
1905, VOLUME XVIII.
NO. 107.



Photo: E. Dockree.

THE TECHNICAL SCHOOLS, BATH.
THE LATE J. M. BRYDON, ARCHITECT.

Brydon at Bath.—III.

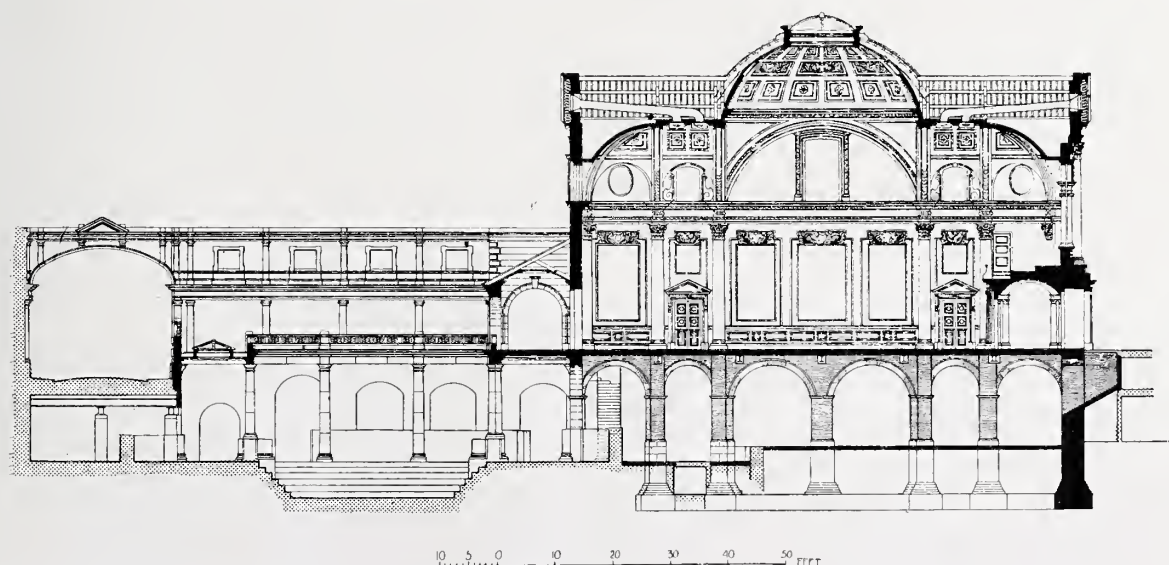
Conclusion.

THE so-called Diamond Jubilee of Queen Victoria was marked by a public subscription for the erection of a picture gallery and library of reference. Mrs. Roxburgh represented the loyal feelings of the citizens of Bath by a munificent donation of £9,000 towards the expenses, and the remaining £4,000 was speedily forthcoming. Brydon was called upon to add to the science and art class-rooms which formed the northern wing of his municipal buildings. These buildings came up to the corner of High Street and Bridge Street, and terminated in a turret answering to that which faces the north transept of the abbey church, at the southern end of the Guildhall. Facing into Bridge Street, which leads down to Adam's Pulteney Bridge, the whole space on the south side is occupied by the new building, some 175 ft. in length. At the extreme eastern end is the principal entrance close to the river. It is well shown on p. 153. Another entrance under the centre of the north front admits to the library, and is flanked by plain windows on the lower storey. The upper storey, which is skylighted, has a series of niches, the centre one being filled by a statue of the late Queen. The whole building in its simplicity shows its purpose in every detail, and while it differs wholly from the municipal front in High Street, has a monumental character very appropriate to the historical event which it is intended to commemorate.

The library occupies part of the ground floor. It is 50 ft. long by 32 ft. in width. It contains an extensive and very valuable collection of books on the history and topography of Bath, together

with a series of engravings and plans of the chief features of the ancient city. A print-room adjoins it on the east side and also opens into the vestibule of the eastern entrance mentioned above. This chamber measures 36 ft. by 32 ft., and, like the library, is 17 ft. 3 in. in height. It is furnished with cases containing rare objects of local interest, including old books and bindings, pottery, porcelain, and silver: while the walls are decorated with paintings. The principal entrance to the staircase and gallery is by the corner doorway just named, which admits to a circular hall or vestibule of great beauty, 22 ft. in diameter, from which a door opens at one side on the so-called print-room, where some books and other objects of local interest are exhibited. There is an archway on the south side to the staircase, and a vestibule above from which entrance is had to the gallery. The whole composition, including the two circular vestibules and the rectangular building which contains the staircase, merits close examination. The picture gallery is perfectly plain within except for the management of the lighting, which is very good. The gallery is 90 ft. long by 32 ft. wide, and at the sides measures 25 ft.; the centre, where are the windows, being 35 ft. in height.

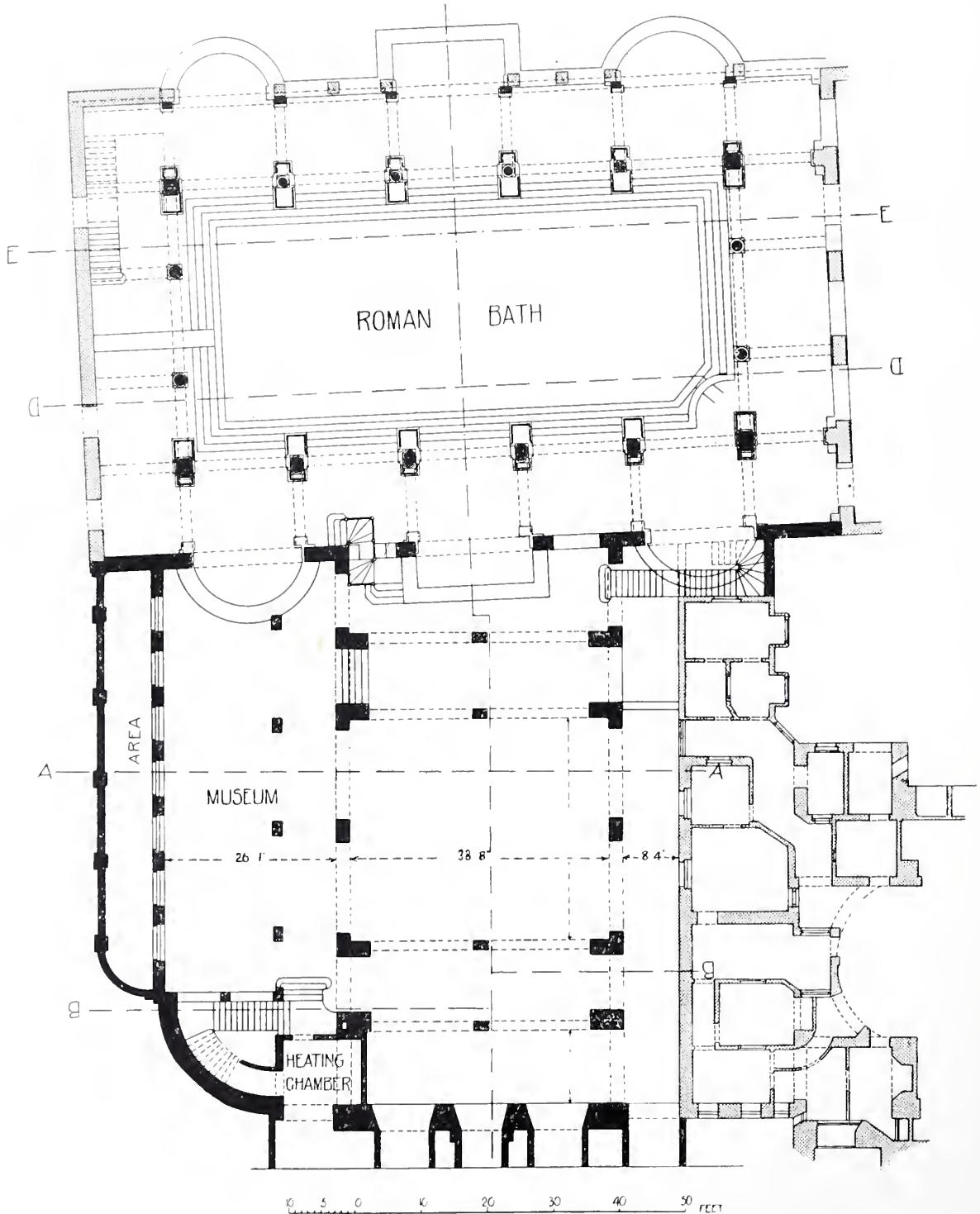
From the examples described and figured in these articles it is easy to distinguish the characteristics of Brydon's work. We can, in fact, do more, for we can see why the little we have of it is so pleasing to the eye, why it appeals so directly to the judgment. With simple materials, the details which we recognise as "classical," those



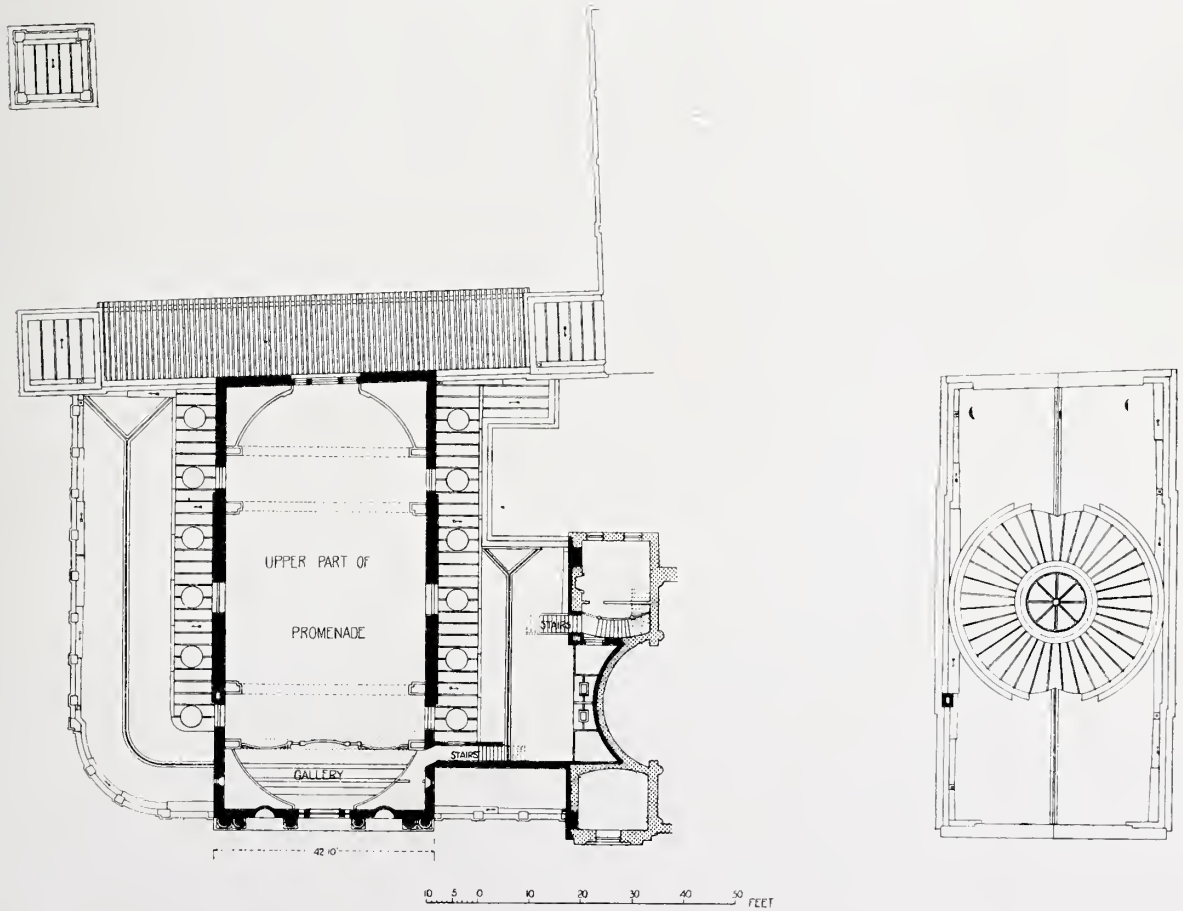
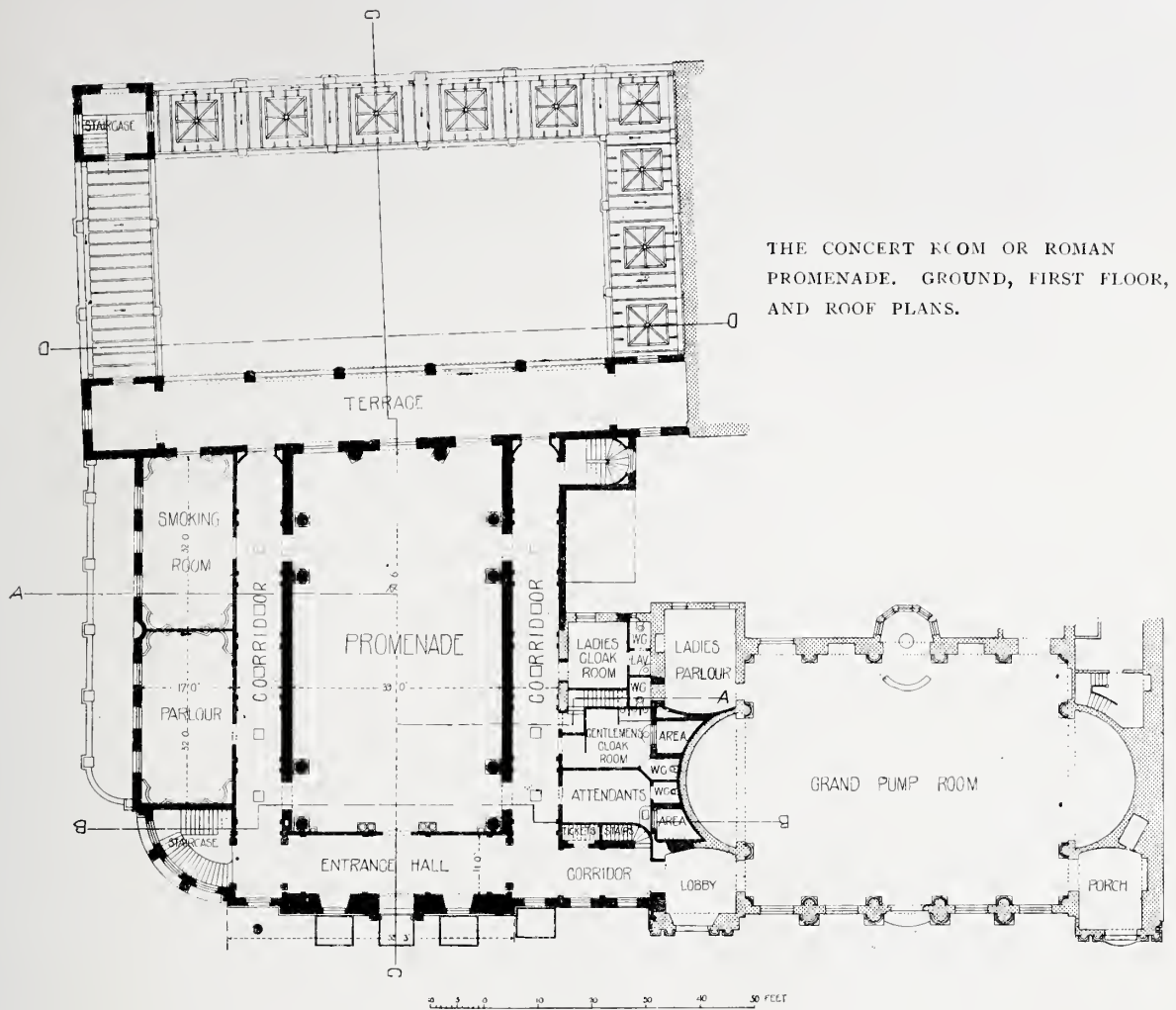
LONGITUDINAL SECTION THROUGH THE CONCERT ROOM AND
CROSS SECTION OF THE ROMAN BATH.

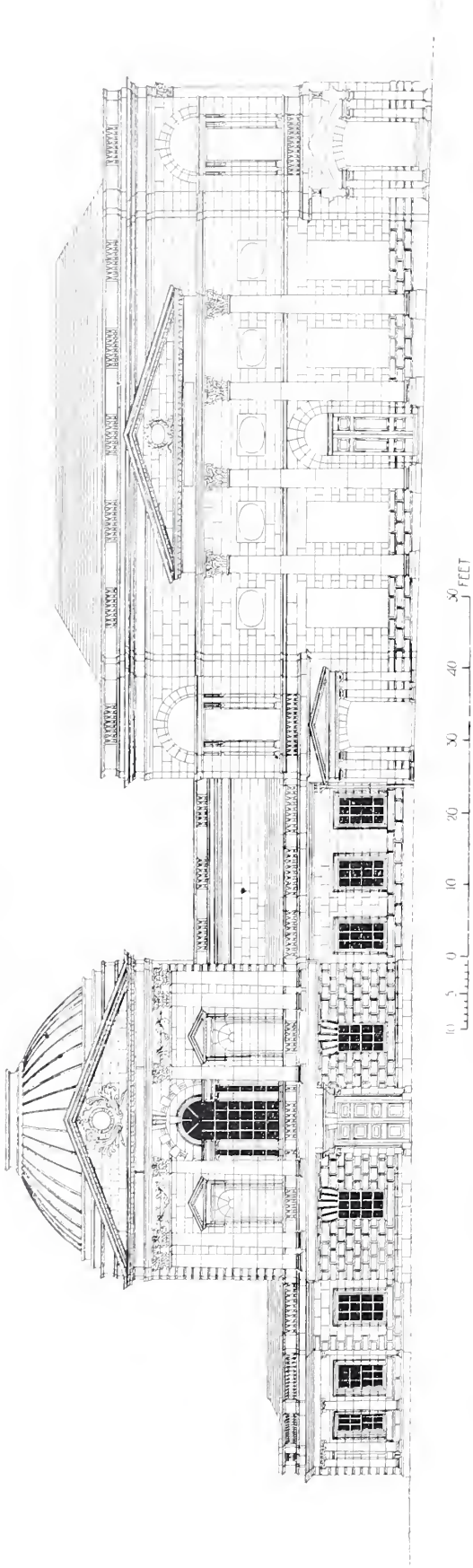
of Inigo Jones and Wren, he evolved buildings of no great size or importance, depending not at all upon ornament, yet complete in design, fitness, proportion, and suitability in a way unfortunately but too rare among modern architects. How would some of the eminent persons responsible in the last two or three generations for, say, the railway stations of London, have fared without every possible help in building construction, and without the most lavish ornament, not only to hide their deficiencies, but as an integral part of their design? What, for instance, would the Albert Memorial be without its carving and gilding

and coloured stones? To Brydon ornament was a very desirable addition, occasionally a very sensible accentuation of the designer's intention, or what the Italians call *motivo*, to borrow a term from the sister art of music. The building did not require them. It might have been constructed of wood, clay, iron—anything, but no doubt the architect would have preferred gold and marble and mahogany. It is when you put the "ornamental architect" to build with mean materials that he fails, but it is when you put genius like, say, Wren's to work under the most adverse circumstances that he excels. Brydon, indeed,

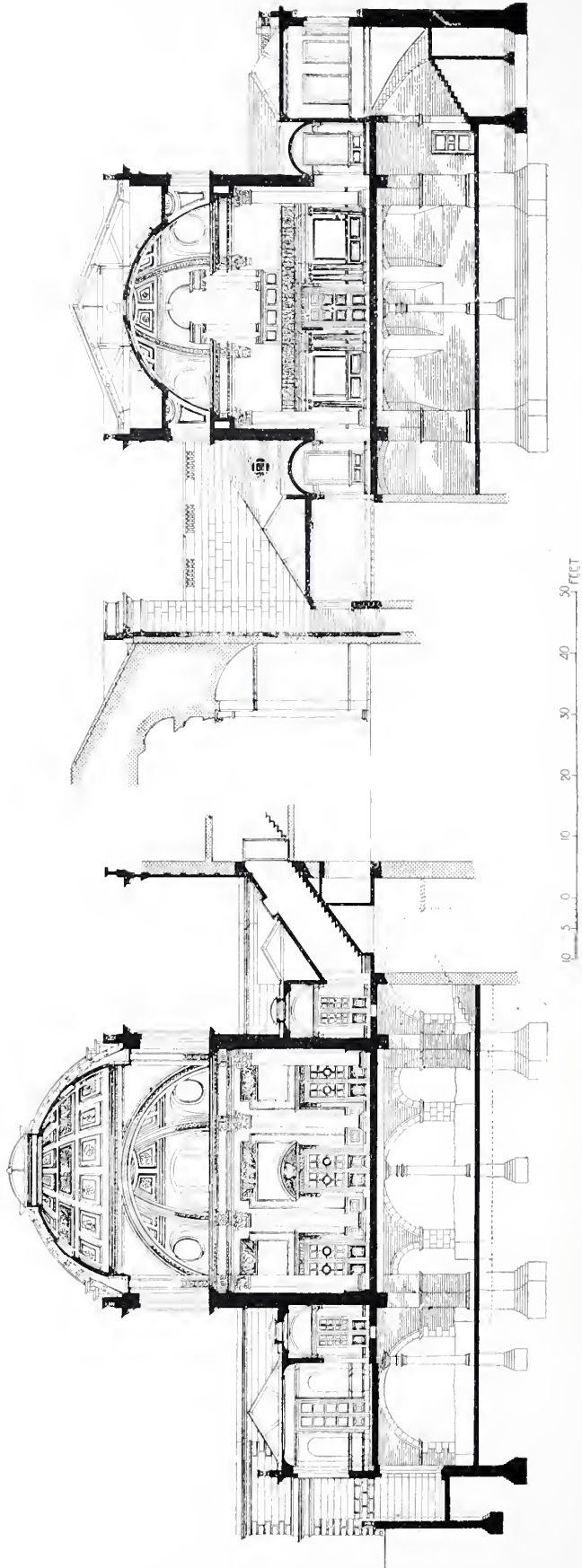


THE CONCERT ROOM OR ROMAN PROMENADE. BASEMENT PLAN.





ELEVATION: THE CONCERT ROOM. THE GRAND PUMP ROOM (OLD).



CROSS SECTIONS: THE CONCERT ROOM OR ROMAN PROMENADE.



CONCERT ROOM. NORTHERN END.

Photo: E. Dockree.

had much to contend with, no one can now know how much, and those who supported him can have no greater cause of satisfaction than that which arises from being able to point out to the citizens of Bath how greatly he loved their city, and how greatly he added to its beauty. It is no light thing to say this. Prior to experience it might have been thought that no modern architect could add to the attractions offered by the beautiful

work of the eighteenth century which the western city already possessed. So far in the nineteenth century, that is to say before Brydon appeared on the scene, no worthy addition had been made to the work of the two Woods and Baldwin. Gothic had made no progress, for, though it is very much in evidence near the railway station, the spear-like spike of St. John's Chapel can hardly be reckoned a favourable example. The first and



Photo: E. Dockree.

CONCERT ROOM SOUTHERN END.

best of the two big hotels stands near the Pump Room, and is heavy and absolutely without beauty, though inoffensive. This cannot be said of the second, which offends the eye in every view of the city. There were other buildings, chiefly of very little importance, and not one showing any ambition to emulate the older work, while the very interesting house in Orange Grove, always locally attributed to Lord Burlington, was de-

stroyed to improve a bad approach to one of the hotels. Mr. Mowbray Green has shown that it was not designed by Burlington, but that it was one of the oldest examples of the style remaining, and could ill be spared. It would be easy to go about noting here and there a shop front or a doorway in which glimmerings of architectural taste, Gothic or classical, showed themselves; but it is certain that nothing of the slightest importance

*Photo: E. Dockree*

ENTRANCE TO PICTURE GALLERY.

calls for notice before the appearance of Brydon. Of the narrow escape Bath had when he first offered himself for the favour of the citizens, I have endeavoured in one of the foregoing chapters to tell the tale. I have now only to sum up and to endeavour to impress upon the citizens of Bath the fact that in Brydon's work they have a series, far too short it is true, of buildings well worthy to rank with the Circus, the Crescent, or the north side of Queen

Square, as examples not only of architecture, but of pure art in the abstract, and to point out, as one looking on disinterestedly, how valuable are the treasures which have been confided to their care. Theirs is a precious charge to keep uninjured, and hand on to posterity. Very few provincial towns in England can boast of civic buildings to rival in attraction the beautiful cathedrals and churches bequeathed to us by mediæval devotion; but it is satisfactory to note that

already an improvement in taste is apparent, and that works now in progress show signs of an influence which we cannot be wrong in tracing to Brydon, and to the high standard in architectural art which he set up in Bath. That this is the case should be recorded, the more so as it forms an example to all England. Great works are everywhere in progress, and now that the good taste exhibited at Bath can be seen and known of all, there is no longer so much fear as there used to be of a relapse. The improvement has made itself known, especially in Liverpool, in Dublin, and in Glasgow. Birmingham and Belfast have still to show their quality, and there is much to hope for in London, to which indeed many are looking for the last manifestation of Brydon's genius. How far the work now approaching the first stage of completion at Westminster will represent his great and final conception it would be too soon yet to say. We are only to have certain portions of the great design. Like Inigo Jones's palace for part of the same site, on which it was

ostensibly founded, only a fragment is now being carried out—how much we can scarcely yet judge. Half the circular court will be better than none, and poor Inigo's great work did not attain even half. So we must be content with small mercies, and hope meanwhile that the architect's drawings will have been followed with nothing short of servility. We have been assured over and over again that in carrying out the designs for the new Government offices in Parliament Street, which are soon to be unveiled, the authorities of the Office of Works have been actuated by a single-minded desire to fulfil the deceased architect's wishes and adhere to his ideas. It is with a view to showing how lofty those aims were that the example of what he did at Bath has been adduced in the foregoing chapters. With the building last described, namely, the Picture Gallery, Brydon's work at Bath came to an end. The last touches had not been put to the Bridge Street building when their designer's death occurred in May 1901.

Cheap Cottages and the Exhibition at Letchworth.—II.

MOST of the cottages in this exhibition at Letchworth belong to the second division into which I have classified the planning, namely those with three bedrooms. This division admits of sub-division into (*a*) bungalows or cottages on one floor, and (*b*) cottages of two floors.

In the first sub-division there are practically only two types of plan; Figs. 5 and 6 belong to one, and Fig. 7 to the other type. Fig. 5 illustrates the cottage erected by the British Uralite Company (No. 53); it will be seen that the living-room or kitchen and a bedroom occupy the front, while behind these are placed two other bedrooms side by side, and a scullery. Fig. 6, a bungalow by Messrs. J. A. King & Co. (No. 48*a*), has the same arrangement, but is distinctly better in that the bedrooms are not in direct communication with the living-room, as in Fig. 5, because occasionally this room may be required to be occupied by persons who are not members of the family when some of the tenants have retired to rest: moreover, to have to wander out into the open to the w.c., especially at night, is not a very happy arrangement, while the provision of the roof over the bay window in Fig. 5 is needlessly expensive, although picturesque. Neither bungalow is roofed with a simple roof, and the plans might just as well have been squared up. The

cottages built for the Marquis of Salisbury and designed by Mr. W. Marshall (No. 83) conform to this same arrangement, but have one bedroom leading out of another, and the latter out of the kitchen—hardly satisfactory—while the w.c. is in an outhouse separate from the cottage.

The second type of plan, Fig. 7 (No. 35), it will be seen differs only from the first in having the scullery sandwiched between bedrooms. By this arrangement only one chimney is required, which gains in economy over the two in the other type of bungalow, while it gives warmth in the house by being in the centre. The simple roof is a commendable feature, but the fact that two of the bedrooms are entered from the living-room is most objectionable, and as the communication of sleeping-rooms with living-rooms seems inseparable from this type of plan, it must be ranked inferior on the whole to Fig. 6. It will be noticed that to make the bungalow plan efficient a passage is necessary, which increases the area of floor and roof, and though a staircase is saved the space required for this latter would be no more than the extra passage room in the bungalow, considering that the space under and over the stairs can be partially utilised. To this type of plan belongs the cottage by Messrs. Clare & Ross (No. 59), and that by the Darlington Construc-



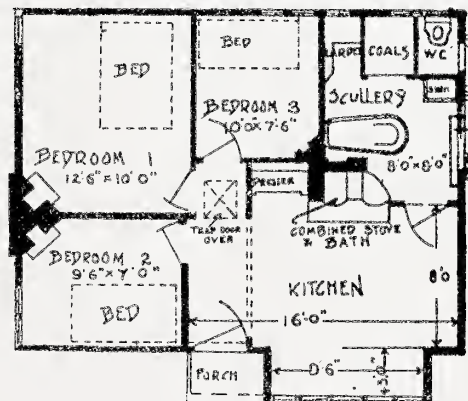
FIG. 5.—BUNGALOW BY THE BRITISH URALITE COMPANY, LTD.
WHEELER & SON, ARCHITECTS.

Constructed of 4 in. by 3 in. studding covered with "Uralite Kent Board" both sides, painted and sanded externally and whitened internally. Roof rough-boarded and covered with red "Uralite Kent Board" tiles.

tion Company (No. 72). The other bungalows in the exhibition are inferior and expensive variants.

Coming to the second sub-division (*b*) under which most of the cottages in the exhibition group themselves, there are two main types, namely those without and those with sitting-rooms. Figs. 8-17 belong to the first, and Figs. 18-25 to the second type. In these again there are sub-types.

The most elementary plan is to place the living-room and scullery on the ground floor, similarly to Fig. 2 (published in the first part of this article), with three bedrooms on the first floor. This is the arrangement in Fig. 8 (No. 62). Good points in this plan are the entrance hall that prevents visitors seeing into the living-room, and the small amount of passage room on the first floor. The entrance being at the side prevents the erection of more than two in a block. It would have been better to have made the scullery door to open from the entrance hall, and the bedrooms are awkward in shape. The w.c. is again not under cover as it should be. The overhanging top storey is easily possible in a weather-boarded upper floor, and gains extra space for the bedroom floor. Fig. 9 (No. 14) is a very similar arrangement to the last, but distinctly superior. The inclusion of the offices within the main walls has

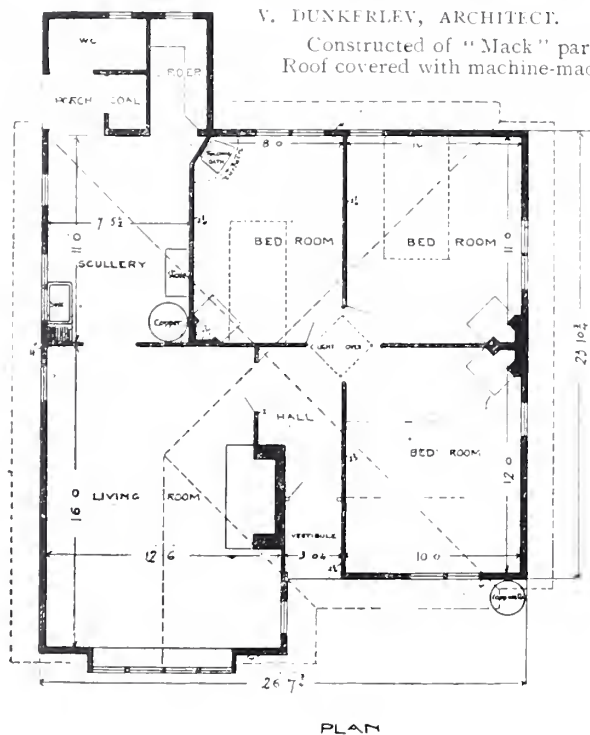


given on the first floor the area necessary for bedrooms of good size. There is little waste of space on this floor with passages. The w.c. is reached under cover, and yet excluded from contaminating the air in the house. The plan is a very good one, and it is difficult to see how it could be improved with the same requirements; but the fact of two chimneys being rendered necessary, the front entrance lobby being taken out of the living-room when there is already wasted space adjoining the stairs and upon the landing on the first floor, and the copper being inside so that the steam cannot escape, suggests the possibility of a better arrangement if remodelled. The plan is nearly square, the most economical shape. The design permits of being built in blocks or rows, but has the longest side to the front. It will be noted that no bath or bathroom is provided. The cost of this cottage is stated at £150 without extras, and thus conforms to the spirit of the competition. Messrs. Green Brothers, who I



FIG. 6.—BUNGALOW BY J. A. KING & CO.

V. DUNKERLEY, ARCHITECT.

Constructed of "Mack" partition slabs, 4 in. thick, rough-casted.
Roof covered with machine-made tiles.

understand have erected similar cottages before, express in the catalogue their preparedness to undertake to duplicate the cottage for £175, including builder's profit, architect's fees, and men's travelling expenses, and state that $3\frac{1}{2}$ per cent. would be saved by erecting two together, and 5 per cent. by erecting four. When the size, accommodation, and materials of this and Mr. Clough's cottage (Fig. 23) are examined, it shows how much can be done with care. The walls are 9 in., built of local Arlesley bricks costing 20s. a thousand delivered on the site, cement rough-casted, and the roof covered with

local red tiles. Fig. 10 (Nos. 67 and 68) is very much the same in plan as Fig. 9, except that the roof is complicated, the arrangement of offices not nearly so convenient, and more space is unutilised. The plans of Figs. 11 (No. 34) and 12 (No. 31) are not reproduced, as they are merely modifications in detail of Fig. 10. Mr. Agate's plan is square and compact, and saves one chimney over Mr. Houfton's design, and includes a bath. He places the cost at £140 nett. Mr. Curtis Green does not provide a larder, and has

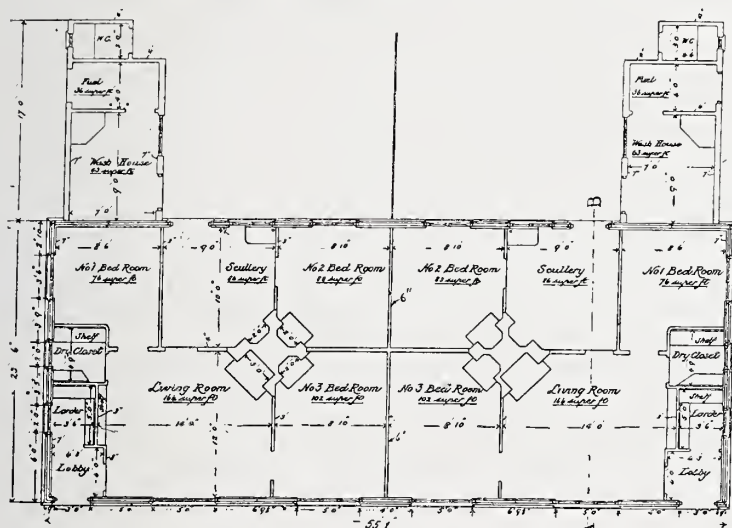
the w.c. entered from the house. He has used only 9 in. walls, whitewashed inside and out, and match-boarded partitions, and comparison with Mr. Houfton's or Mr. Clough's cottages leads to the conclusion that the stated cost of £175 each is excessive and could be lessened. Fig. 13 (No. 43) it will be seen is a further development of Fig. 10. There are a number of cottages being erected to this plan. It is apparent that the irregular form of the plan, the cutting-up of the roof, and the wasted space in hall and landing would make this plan more expensive than a simpler one, while there is more probability of repairs, the possibility of which must be taken into account by landlords. The buttresses introduced for effect do no work and are needless extravagances, for, being illogical construction, they are bad art. The scullery is a fair size, but as the oven is in the living-room most of the cooking must be done in the latter, although the name "kitchen-scully" is given to the former. Messrs. Bennett and Bidwell's cottage (No. 23) has a similar arrangement of plan.

Fig. 14 (No. 47), while belonging to another subtype, in having a back addition, shows itself as a development of the square type by reason of the smallness of this back addition. There are good points about this plan, and it could be modified to be built in rows or larger blocks. In Fig. 15 (No. 81) we see the back addition fully developed until it becomes an L plan, which, as has already been explained, is not so economical as the square.

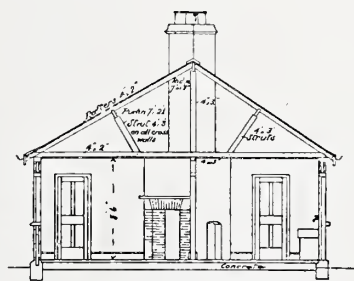


FIG. 7.—A PAIR OF BUNGALOWS AND A SINGLE ONE BY POTTER AND CO.

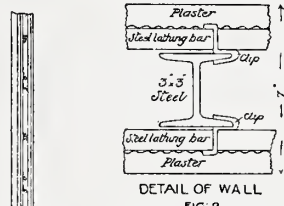
Walls of pair are hollow and constructed of expanded metal plastered.
Walls of single bungalow constructed of concrete *in situ*, 7 in. thick.



Plan, section, and details of Potter & Co.'s pair of cottages.



SECTION A-B



DETAIL OF WALL
FIG 2



SECTION OF WALL
FIG 1



PLAN

FIG. 11.—
BRICK COT-
TAGE BY
C. G. AGATE.

FIG. 12.—
PAIR OF
BRICK COT-
TAGES BY
CURTIS GREEN.

By starting the stairs two or three steps further back the smaller front bedroom could be improved, as headroom would not have to be taken out of it.

Fig. 16 (No. 19) belongs to another sub-type, namely, the oblong, with three bedrooms side by side. But this particular plan, although all very well as a single cottage, would need alteration for erection in blocks. This cottage contains some modern furniture by Messrs. Heal & Son, evidently intended for week-enders of the better class.

Fig. 17 (No. 80) is another sub-type, and is a very interesting departure from the ordinary plan which is offered as a solution by several exhibitors. More space is required for bedrooms than on the ground floor, where only living-room and scullery with offices are provided; one solution offered is to overhang the first floor, but Mr. Troup and others propose to place one bedroom on the ground floor. This provides a means of obtaining three bedrooms on the first floor, but Mr. Troup only provides two. To this sub-type belongs the pair of

cottages by Mr. A. H. Clough (No. 70), and his single cottage (No. 71) costing £120.

The second main type of a cottage with sitting-room or parlour may now be considered. In Fig. 18 (No. 20) this is provided at the expense of a scullery—which will hardly commend itself to most persons, I think, as an improvement. Fig. 4, illustrated in last month's ARCHITECTURAL REVIEW, is a square plan, with parlour, living-room, and scullery, and three fair-sized bedrooms. The cutting-off of the parlour by the hall is fatuous, while there is far too much landing. Fig. 19 (No. 27) is approximately a square plan, and would have been more cheaply covered by a simple roof. The plan is well arranged, with almost a minimum of space in passages.

Fig. 20 (No. 01) is another good plan that may be reckoned another sub-type. Two larger blocks of cottages on practically the same plan were illustrated on pp. 14 and 15 of THE ARCHITECTURAL REVIEW for July. The front room is large, but the "mocked" party wall does not seem to offer

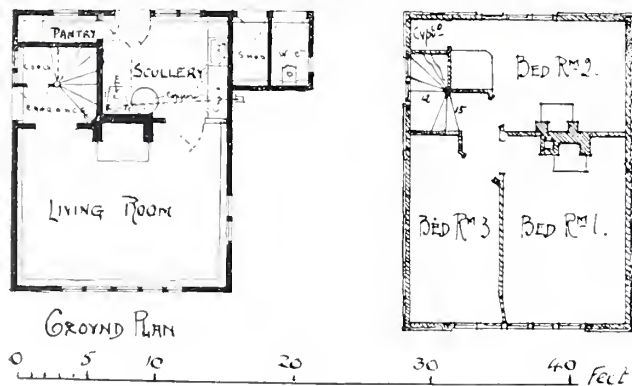


FIG. 8.—BRICK, ROUGH-CAST, AND WEATHER-BOARDED COTTAGE. OSWALD P. MILNE, ARCHITECT.

any particular advantages. The staircase would be better at the front, as on the left-hand plan, and if it began without winders where the fourth step now is, and the winders were relegated to the top of the staircase, the front bedroom would be given more room and a small entrance hall could be provided instead of the front door opening straight into the room and giving visitors a sight of the interior. The back addition, too, should have been narrower, so as to allow the back room more light. Fig. 21 (No. 65) conforms to the same general arrangement, except as regards the elevation made to face the road. This plan is also a good one, and would do well for a week-end

cottage; it is quite outside the problem of the agricultural labourer's cottage. Mr. Scott is honest in his claims, and the cottage is a charming one.

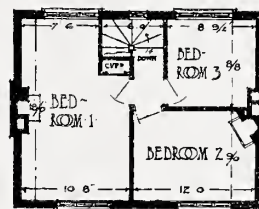
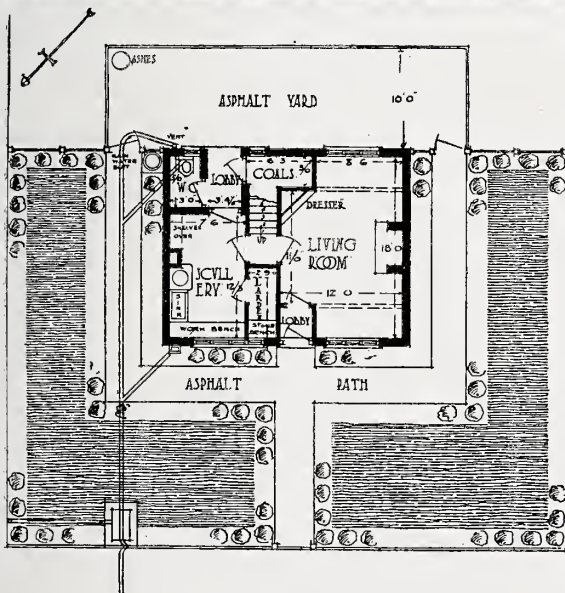
Fig. 22 (Nos. 41 and 42) illustrates another sub-type of plan which is a development of Fig. 21, the parlour and living-room being placed the same way, facing the road; but the scullery in this case is put at the back, and a small bedroom stands over a small back addition.

In Fig. 23 (No. 69) we come to another variant that compares with Fig. 16. This is the oblong type, in which the building is one-room deep. Mr. Clough's plan is a very practical one; he has had great experience now, having erected about one hundred cottages. It contains a remarkable amount of accommodation for the money. It would have been slightly cheaper, perhaps, if the kitchen and parlour fireplaces had backed on to each other, so economising one chimney, and it would, in my opinion, be preferable to reach the coal and earth-closet under cover by altering the door from the scullery. The dormers also add to the cost, and if brickwork had been used for the upper floors, especially $4\frac{1}{2}$ in. thick and rough-casted, there would have been a slight saving over the mansard roof.

Fig. 24 (No. 79) follows this same style of plan, being, however, larger. There are many absurdities in this design, and the cost was greatly underestimated. There seems little object in having rounded angle-bricks at the corners; all such additions to the cost, however small, should be eschewed. The joists are about 9 in. by 3 in., which is excessive, but being this size there would be no deflection to crack the plastering, and the architect's remark in the catalogue about the



FIG. 9.—BRICK, ROUGH-CAST COTTAGE WITH TILED ROOF, BY GREEN BROTHERS. PERCY HOUGHTON, ARCHITECT.



BEDROOM PLAN :

“avoidance of large sheets of plaster for the ceiling on account of their becoming cracked and broken from the spring of the joists” is uncalled for, while he counteracts his own argument by plastering between the joists on laths nailed to the underside of the floor boards, which, of course, give, and would let moisture through the floor when scrubbed, as may be expected to be done often in

a cottage of this class. The staircase is open to the roof, and occupies the highest part of the bedroom floor, the roof coming down so that it cuts off the sides of the rooms. There is no provision for cupboards over the stairs, and therefore a good amount of the cubical contents of the building is wasted. I cannot see the object of placing the bathroom directly under the scullery-window for passers-by to look in or be able to see shadows on the blinds. Also, why the majority of the partitions should have been of brick is incomprehensible, nor is it clear why the coal-house is plastered. The casement windows, too, are hung the wrong way about, so that rain can run down the face of the window and penetrate inside without any provision being made to prevent it. The

glass is puttied on the inside, so that in the course of time when it comes away there will be only the brads to keep the glass from blowing in when there is a strong wind. I am very sceptical as to

the brick fireplaces being as cheap as ordinary cast-iron cottage-grates. It is difficult to see any beauty in hanging the ledged and braced door of the linen-cupboard in one of the bedrooms, so that the plain side is exposed to the cupboard and the ledges and braces to the room. Fig. 25 (No. 58) is another development of this same type of plan, the scullery, however, being here placed in the centre and the offices relegated to a small back addition. The building is, of course, hopelessly extravagant for an agricultural labourer.

• *Materials.*—This is a very important branch of the subject, because these form such a large

proportion of the final cost, and affect the amount of labour required in the erection of a cottage. Of course it is necessary to purchase materials in the cheapest market, and the advantages of buying in quantities need not be enlarged upon. The importance of having the drawings thoroughly worked out from the start and accurate quantities taken off is obvious. Plenty of working drawings of details of construction are also necessary, as this will enable joinery to be prepared beforehand at the factories, and there seems no reason why carpenters' work might not be prepared in the same way, the joists and roof timbers being cut to exact sizes. The staircases can be fitted at the shops. The purchase of stock doors, ironmongery, grates, etc., should, of course, be carefully gone into, and worked in wherever possible.

It is difficult to compare the cost of various materials, as the conditions of each problem are so different and so largely influence the price. What is cheaper in certain circumstances may be dearer in others. The cost of every material naturally depends upon the amount of labour expended on its production, and in a building the final cost upon the

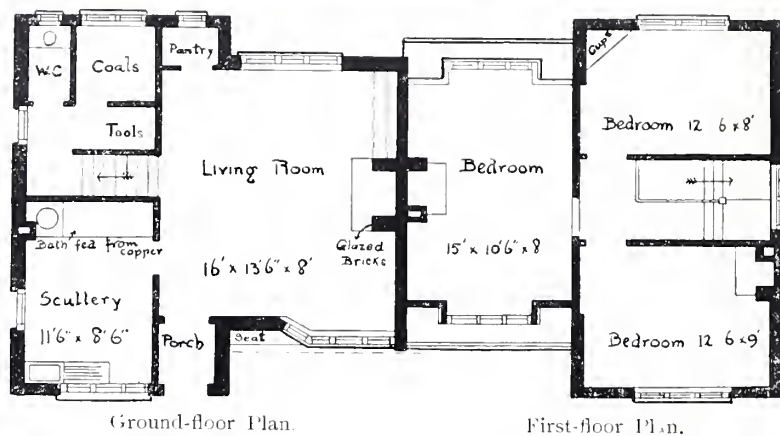


FIG. 10.—PAIR OF COTTAGES BY CO-PARTNERSHIP TENANTS'
HOUSING COUNCIL, LTD. V. DUNKERLEY, ARCHITECT.



LIVING-ROOM IN COTTAGE. LIONEL CRANE, ARCHITECT.
FURNITURE BY HEAL AND SON.

labour to be expended in fixing, and its lasting qualities and freedom from repair. In considering the cost of any material it is well to inquire into the actual process through which it has gone during manufacture, how much work is put into it, the cost of labour, of carriage, and finally the amount of work necessary to make it efficient for service in a building.

The following is an attempt to roughly ascertain the cost of various materials at present in use for building cottages, compared under equally favourable conditions and to the same unit, namely, per square foot of surface :—

Brickwork costs about 10*d.* per 100*t.*, 9 in. thick, inclusive of labour and materials; 4½ in. thick it costs about 6*d.* If the patent system of the Fireproof Partition and Spandrel Wall Company, as adopted in cottages No. 40 and 60 at Letchworth, be used, the cost of a 4½ in. wall would be slightly increased by the hoop-iron construction which has to be adopted to strengthen the wall. A 4½ in. wall may be regarded, even if constructed in cement, as unsatisfactory, unless rough-casted, which will cost about 1½*d.* per foot. Some persons will no doubt ask for the brickwork to be plastered inside. This will cost about 2*d.*

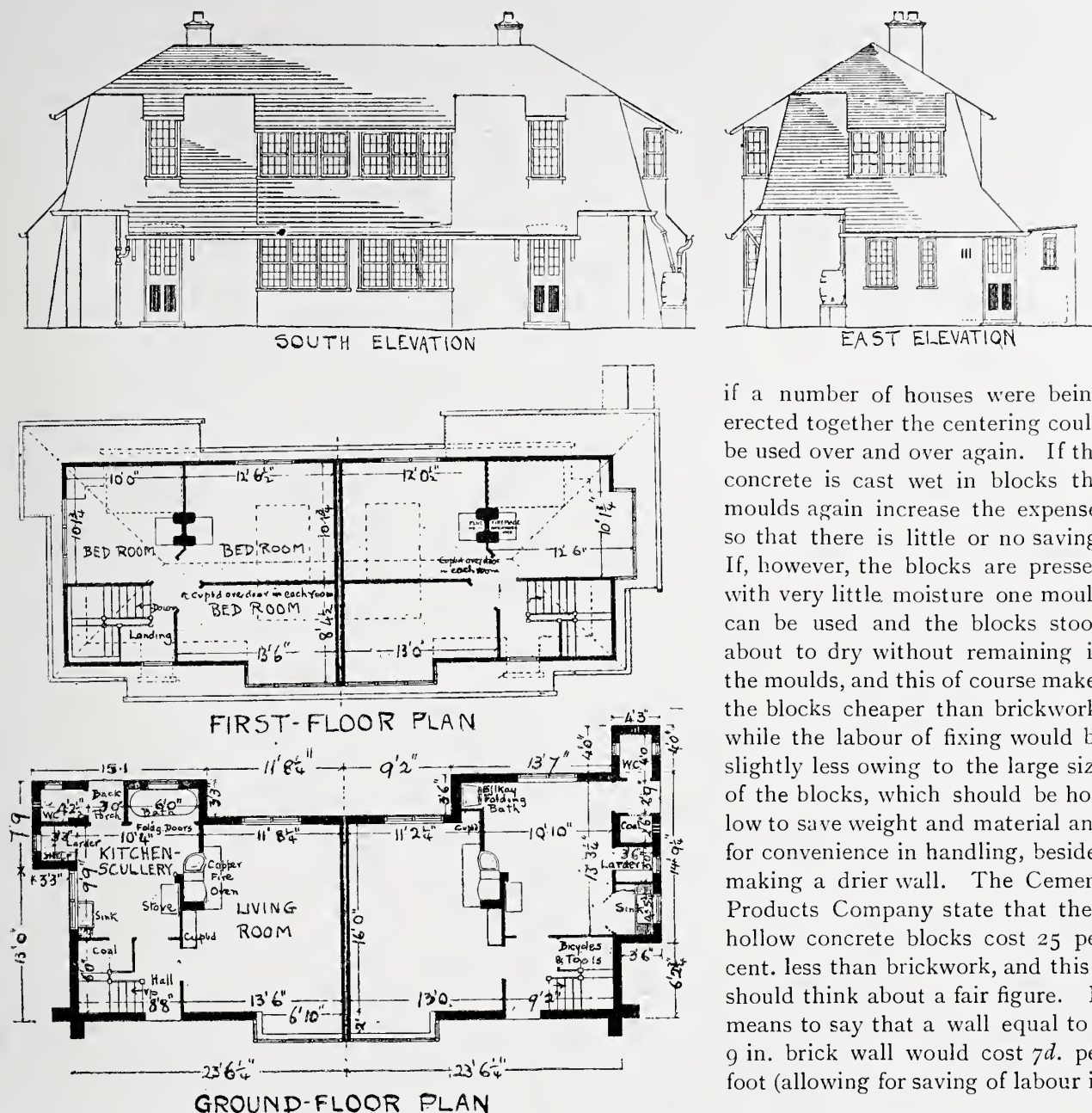


FIG. 13.—PAIR OF BRICK COTTAGES FOR THE LETCHWORTH BUILDING SYNDICATE. V. DUNKERLEY, ARCHITECT.

per square foot. Thus a $4\frac{1}{2}$ in. brick wall, rough-casted on the outside and plastered internally, would cost about $9\frac{1}{2}d.$, and a $9\frac{1}{2}$ in. brick wall, plastered internally, about 1s. per foot super. Hollow bricks or blocks are now made, which would enable a wall to be constructed that would be drier than a $4\frac{1}{2}$ in. solid, but the cost would be as much as ordinary solid brickwork.

When bricks are unavailable in the locality, rough random rubble might be used, and would cost about the same as a 9 in. wall for equal efficiency.

Concrete is another material, and if used *in situ* the cost of the centering has to be added to the materials, and this sets off any saving in the case of the raw materials for isolated cottages, although

if a number of houses were being erected together the centering could be used over and over again. If the concrete is cast wet in blocks the moulds again increase the expense, so that there is little or no saving. If, however, the blocks are pressed with very little moisture one mould can be used and the blocks stood about to dry without remaining in the moulds, and this of course makes the blocks cheaper than brickwork, while the labour of fixing would be slightly less owing to the large size of the blocks, which should be hollow to save weight and material and for convenience in handling, besides making a drier wall. The Cement Products Company state that their hollow concrete blocks cost 25 per cent. less than brickwork, and this I should think about a fair figure. It means to say that a wall equal to a 9 in. brick wall would cost 7d. per foot (allowing for saving of labour in

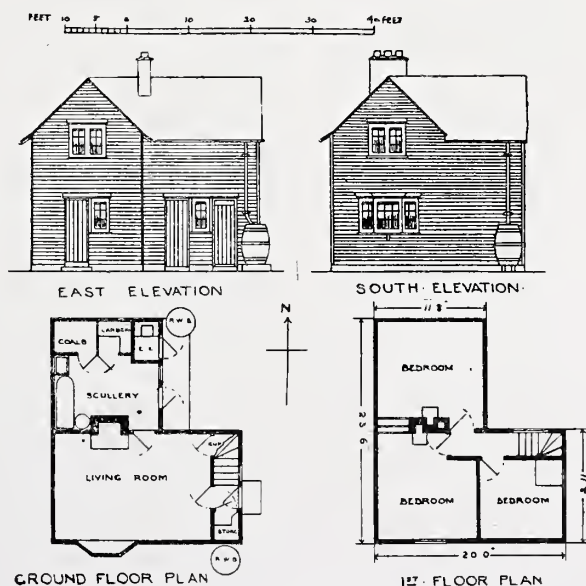


FIG. 15.—WEATHER-BOARDED COTTAGE. SMITH & BREWER, ARCHITECTS.



FIG. 18.—BRICK COTTAGE BY THE BOURNVILLE VILLAGE TRUST.
H. BEDFORD TAYLOR, ARCHITECT.

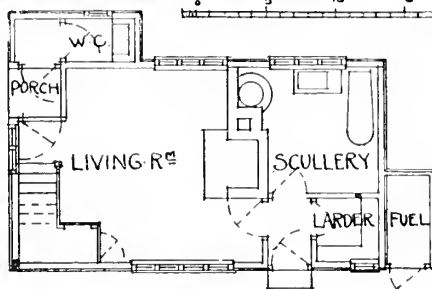
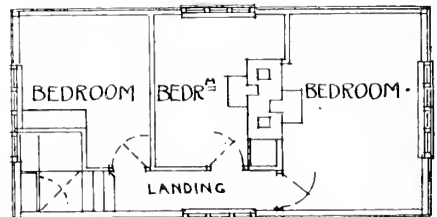


FIG. 16.—WEATHER-BOARDED COTTAGE.
LIONEL F. CRANE, ARCHITECT.



BEDROOM-PLAN.

erection). But concrete is cold and condenses moisture, and this is unhealthy and prevents a wall-paper remaining on a wall, for which reasons it has been largely forsaken by the Germans, who have had more than thirty years' experience of it. The same difficulty is being experienced in America, where concrete blocks have been largely boomed, and it seems therefore that plaster must be used. This would bring the cost up to about 9d. per square foot. Reinforced concrete does



A BEDROOM IN COTTAGE BY LIONEL CRANE. FURNITURE BY HEAL AND SON.

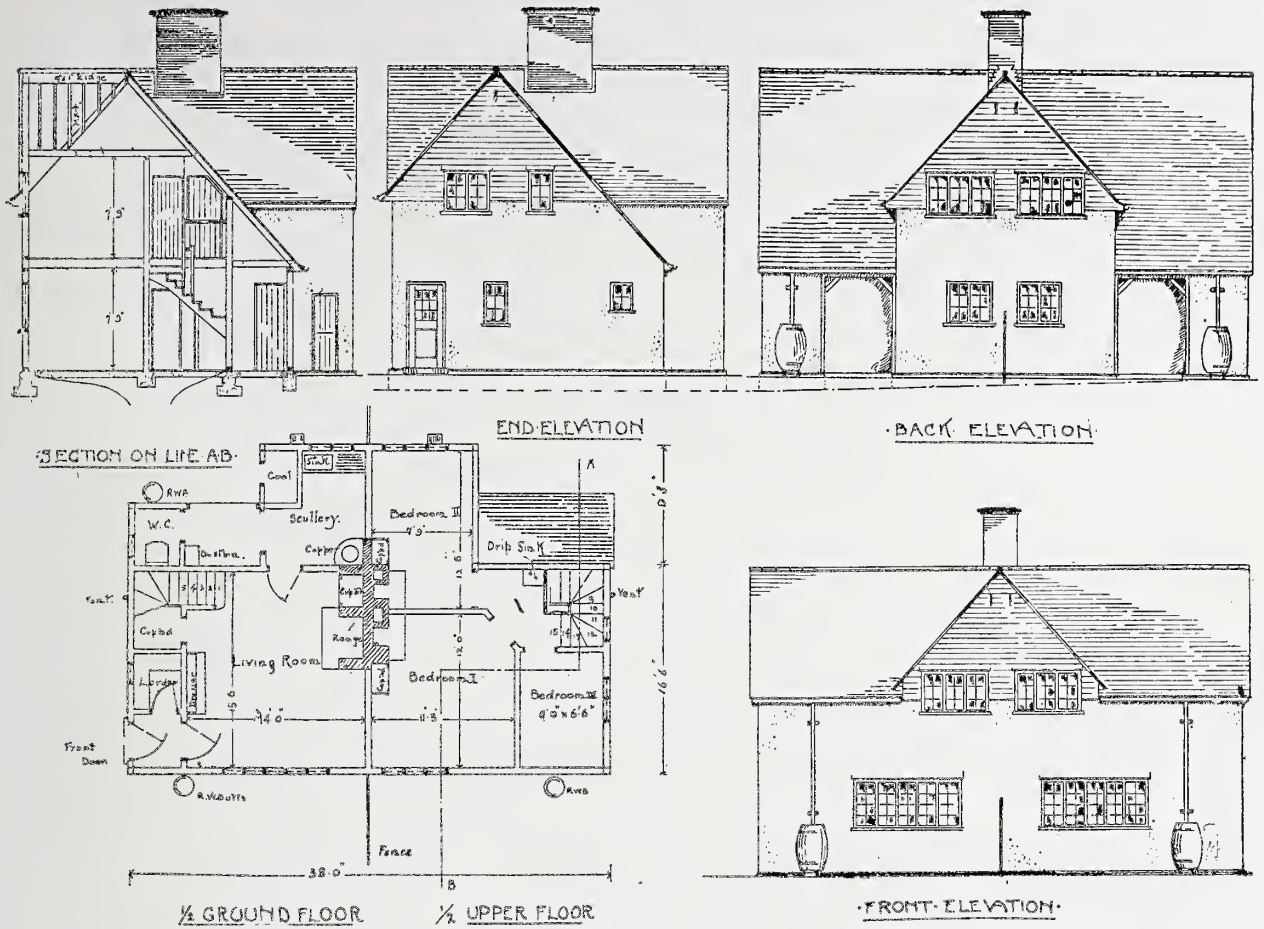


FIG. 14.—SINGLE COTTAGE AND PAIR OF COTTAGES BY THE NEW EXPANDED METAL COMPANY, LIMITED. OLDRID SCOTT & SON, ARCHITECTS

Walls constructed of expanded metal lathing and plaster on timber framing, giving 4 in. hollow space. Internal partitions of expanded metal and plastering 2 in. thick; similar lathing used for ceilings. Roofs covered with "Asbestos"

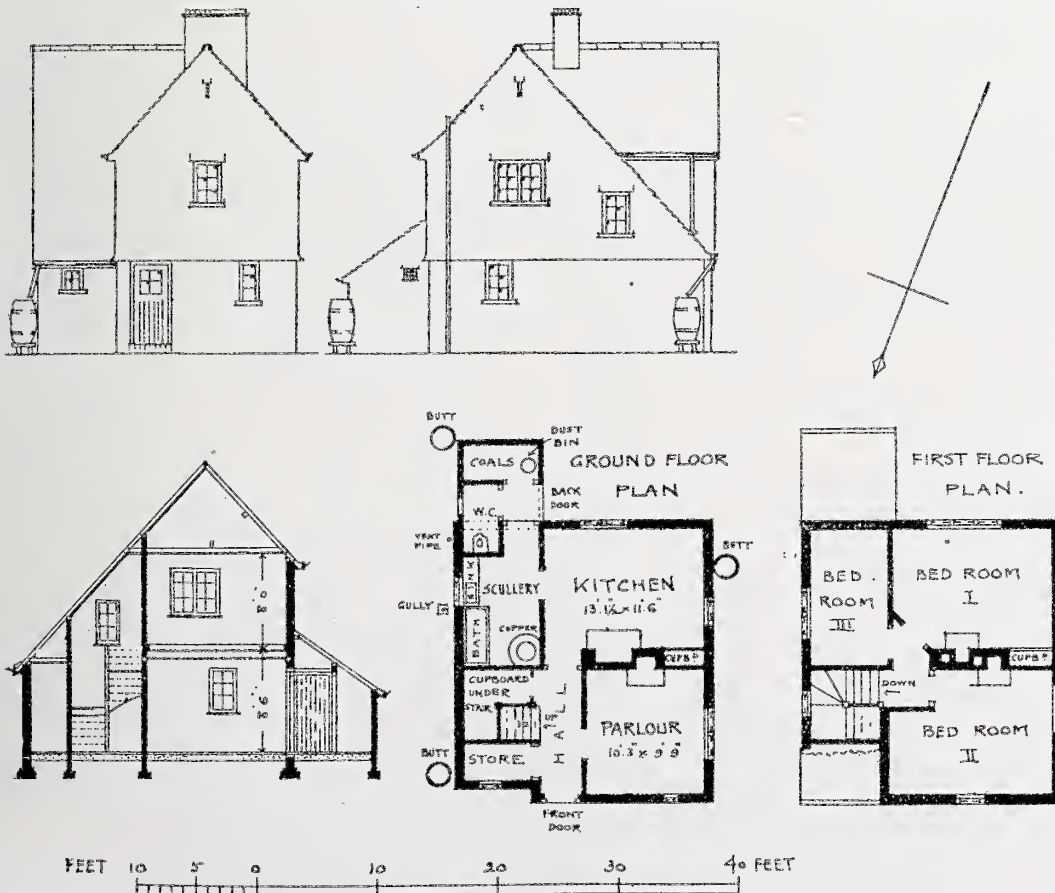


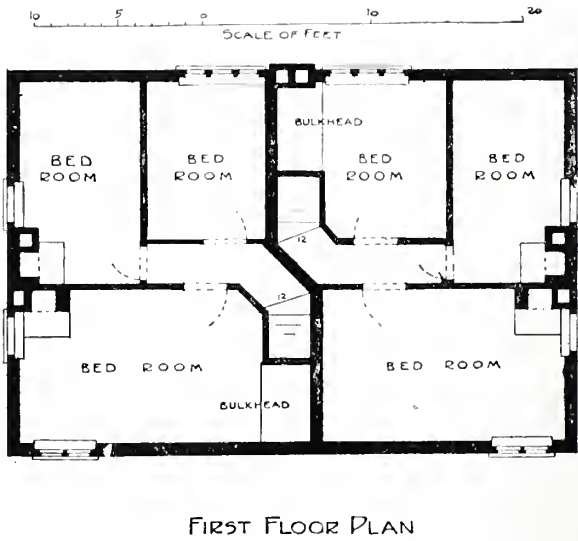
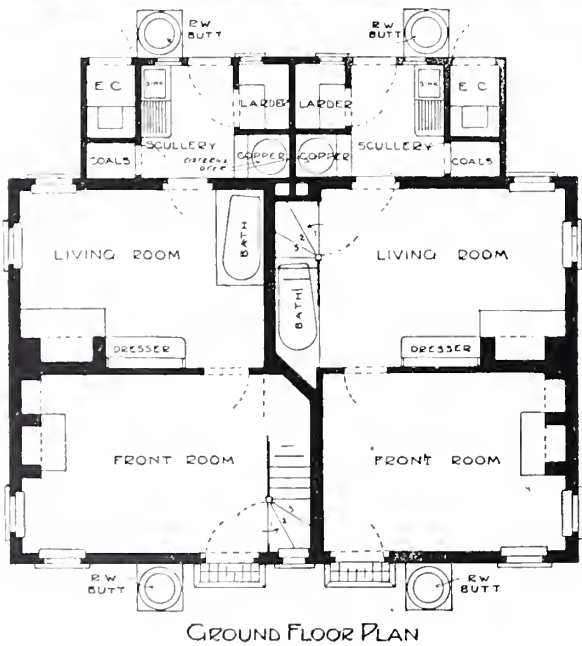
FIG. 19.—BRICK COTTAGE. ALLEN FOXLEY, ARCHITECT.

not appear to offer any advantages; the metal reinforcement would only add to the cost. Concrete slabs require a timber framework and plastering internally, which renders them as expensive as a brick wall 9 in. thick.

There are the "Kulm" pumice-stone concrete partition blocks and the "Mack" and other plaster partition slabs which offer advantages. They need rough-casting outside and two coats of plastering inside, and



FIG. 20.—PAIR OF BRICK COTTAGES.
GEOFFRY LUCAS, ARCHITECT.

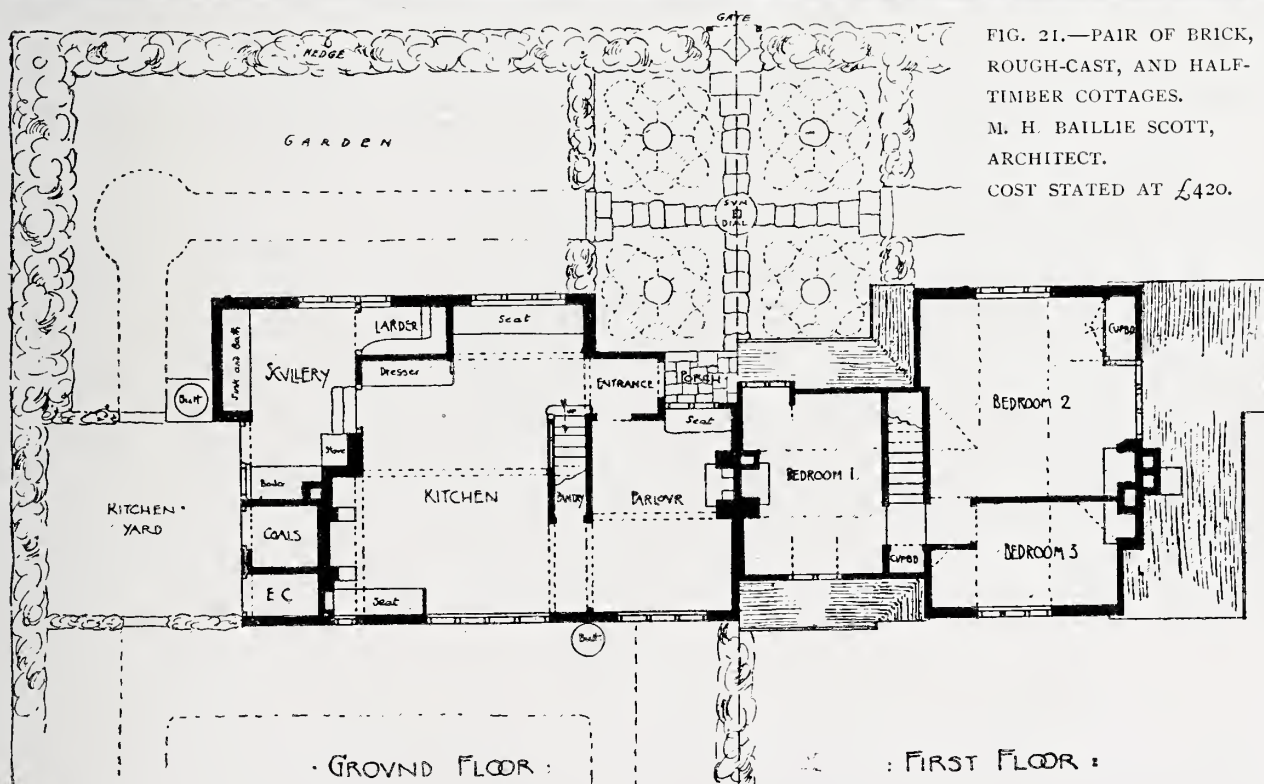


the cost would work out at 7*d.* to 9*d.* per square foot.

The old lath-and-plaster cottages have been spoken much about, but they are a continual source of repairs, and they harbour rodents and smaller vermin. Expanded metal lathing is proposed as a remedy, and cottages erected by the Expanded Metal Company (No. 47) and Messrs. Potter & Co. (No. 35) are interesting. The cost of the framing,

two thicknesses of expanded metal, plastering and rough-casting externally and internally, etc., would bring the cost up to about 9*d.* per square foot.

There are several timber cottages in the exhibition constructed externally with weather boarding on framing, and plastered internally, or of large boards plastered internally. The cost of such would amount to about 7*d.* per square foot, but the danger from fire and the encouragement



given to fungus and vermin will always place timber in the position of an inferior material.

Galvanised iron does not last for many years, and the cost of the timber framing renders it more expensive than timber, namely, about 8d. per square foot, while it is not more efficient, and can only be regarded as a temporary construction.

Vertical tiling and slating seem to have been overlooked by competitors. They are both very

good materials. If tiles are used I would advise a sheet of "Ruberoid" or similar material being fastened underneath; the cost of these, together with internal plastering, would amount to about 11d. per square foot. If slating were adopted without "Ruberoid" the cost would be about 9d. "Uralite," "Asbeslate," and other similar materials approximating to slating, but made in larger sizes and thicker and able to be cut with a saw, have

their uses, but their cost is difficult to ascertain. It would probably be about 10d. or 11d. per square foot inclusive of internal plastering.

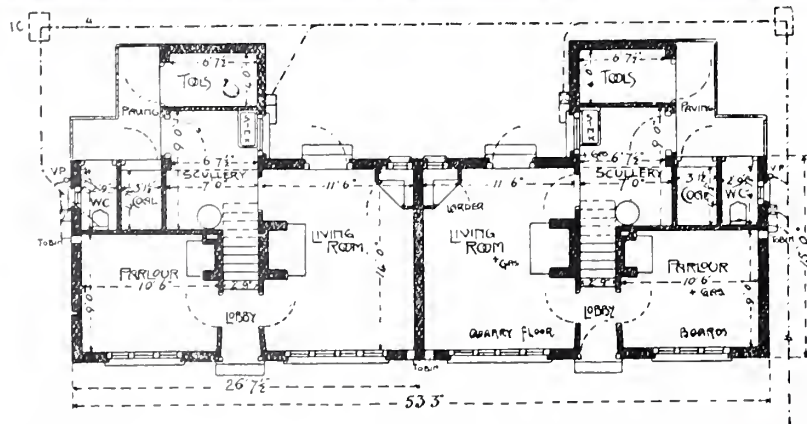
The efficiency of the many new materials after a few years' wear is often questionable, and it would be well if the cottages at the exhibition had been allowed to stand over the winter before judgment were passed on them.

Concrete cannot be beaten for foundations. For walls there are available several materials referred to above. The chimneys must be of brick. Partitions are best of plaster, pumice-concrete or terra-cotta blocks, or expanded metal and plaster. The last is perhaps the cheapest, though the blocks run it close and economise space. I do not favour matchboarding for partitions. For roofs, slates and tiles cannot be bettered for durability and price, the former being the cheaper. Thatch is inadvisable, and oak shingles, etc., are generally dearer or liable to catch fire. A flat roof offers no economy over one of low pitch, is often dearer, and not carrying the water off so well is productive of repairs. As to

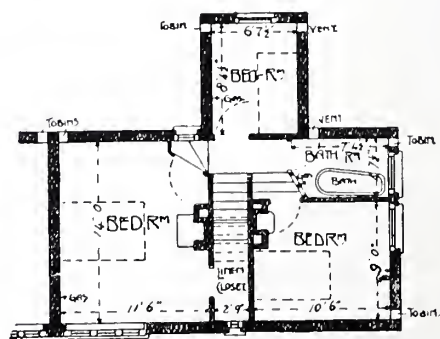
floors, timber cannot be beaten for the upper floor, while boards nailed direct on the concrete, tiles, and bricks save a small height in the walls and are most economical for the ground floor; wood blocks wear unevenly, swell when not properly seasoned and wetted, and cost more, so that they are not advisable. Ceilings should be plastered, and whitewashed boards are objectionable, as they shrink and let dust or water through.

Fittings.—Under this heading come a variety of necessary things which affect the cost materially. The doors and windows, it has been stated above, should be of stock sizes or standardised throughout, so that a quantity can be made to one design. Swedish joinery is cheap, though English machine-made joinery is only a little dearer. The ironmongery should be simple, and Norfolk or Suffolk latches are sufficient for all interior doors. Ranges and stoves should be of the most everyday pattern; merchants' catalogues will afford plenty of information as to cost. The large discounts will need to be ascertained for comparison.

The "Larbert" range is a very cheap one, and "oven and sham" is better than with boiler, as the latter wears out or gets cracked after a few years and is a source of trouble and annoyance. A fair-sized range costs little extra and is much more appreciated, but it must not be too large, as the agricultural labourer cannot afford much fuel. Small grates for bedrooms are so cheap that the construction of specially designed brick fireplaces with or without specially wrought iron bars, although ingenious, is not so economical. A small portable copper with flue pipe is cheapest, unless it adjoins a chimney flue. The advisability



Ground Plan.

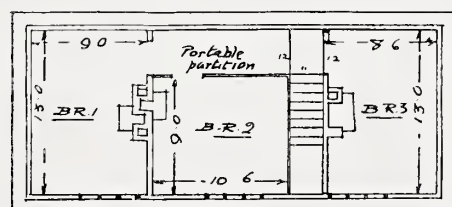
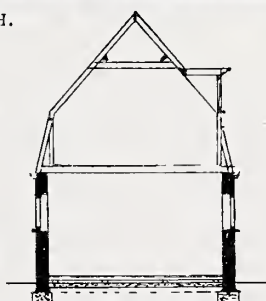
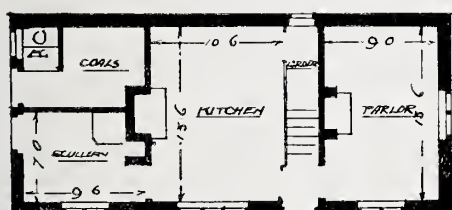


First-floor Plan.

FIG. 22.—PAIR OF BRICK COTTAGES BY THE BOURNVILLE VILLAGE TRUST.
H. BEDFORD TAYLOR, ARCHITECT.



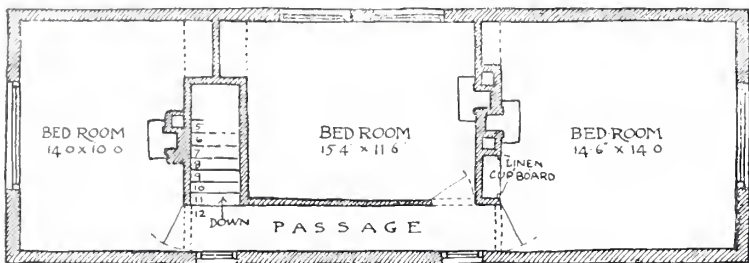
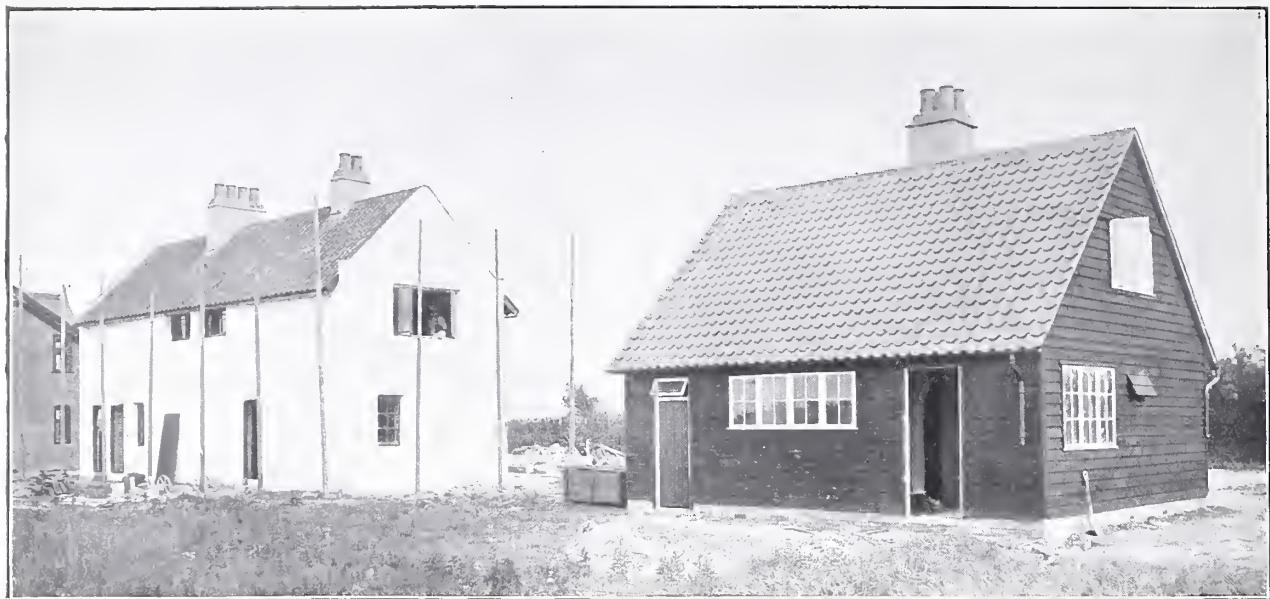
FIG. 23.—BRICK COTTAGE BY A. H. CLOUGH.
COST STATED AT £135.



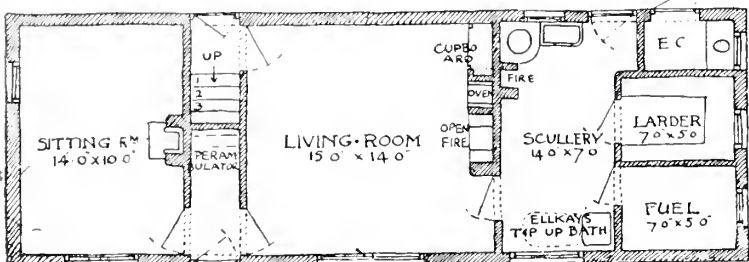
of providing a bath has been already considered. The combined baths, boilers, ranges, etc., are admirably ingenious and no doubt are useful, but their cost is comparatively great and cannot often be afforded. A sink has been adversely criticised by some as insanitary, and an open gully advised instead, but I do not agree with this. The plumbing and drainage should be simple, and the planning should be studied in this respect. Pipes should be short in length, and taps, etc., can often be better fitted on lead pipes at large shops and fixed without the expense of engaging a plumber on a job. When building in rows, if a sewer is carried down a back passage the drains need not pass under the houses, and this also saves in the opening-up of roads. The simplicity and saving of gutters and down-pipes should also be studied closely. Where w.c.'s are not possible, earth closets can be easily constructed and are better

than cesspools; there is sometimes a difficulty of obtaining dry earth. Occasionally a dresser seems to be reckoned in the furniture; it is, however, always expected to be provided, and should be.

Cartage.—The carriage of materials is often a very important item. Railway and canal rates need not be dealt with here. It is well to order materials in quantities all at one time, so as to save money. In the country sites are frequently far from railways and centres of supply, and long cartages are necessary. This affects the choice of materials, and local ones, such as rubble or timber, may be best. It is here where concrete blocks may be advantageous. The machinery is small and can be easily taken on to the site, and the blocks there manufactured. In the winter, carts, horses, and men are often idle, and then is the best time to undertake cartage. The objections usually raised to doing work in the winter are



FIRST FLOOR PLAN

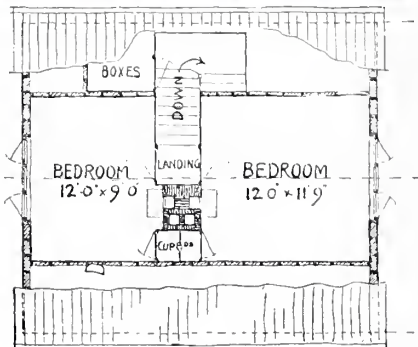


GROUND FLOOR PLAN

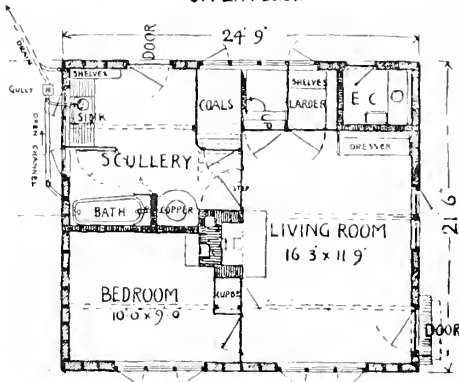
FIG. 24.—BRICK COTTAGE. A. RANDALL WELLS, ARCHITECT.

unreal. The frost is not long continuous, and only affects the erection of walls, which can be built with freshly-slaked lime, as in Norway and Sweden, without danger. Labour, too, is plentiful and cheap in the winter.

Labour.—This is probably the most important question in the whole subject, and is not sufficiently considered. There is not the slightest doubt that workmen do not work well on a time payment basis. It is only natural to expect a workman in the country, especially in the winter, to last a job out as long as possible, as he does not know where or when his next is coming. The minimum wage as a standard discourages men, and is flying in the face of nature, for the best must win. The better workman should get the better pay. Small builders are largely dependent upon their workmen, and find it advisable to pay on the time basis; they overlook a certain amount



UPPER FLOOR



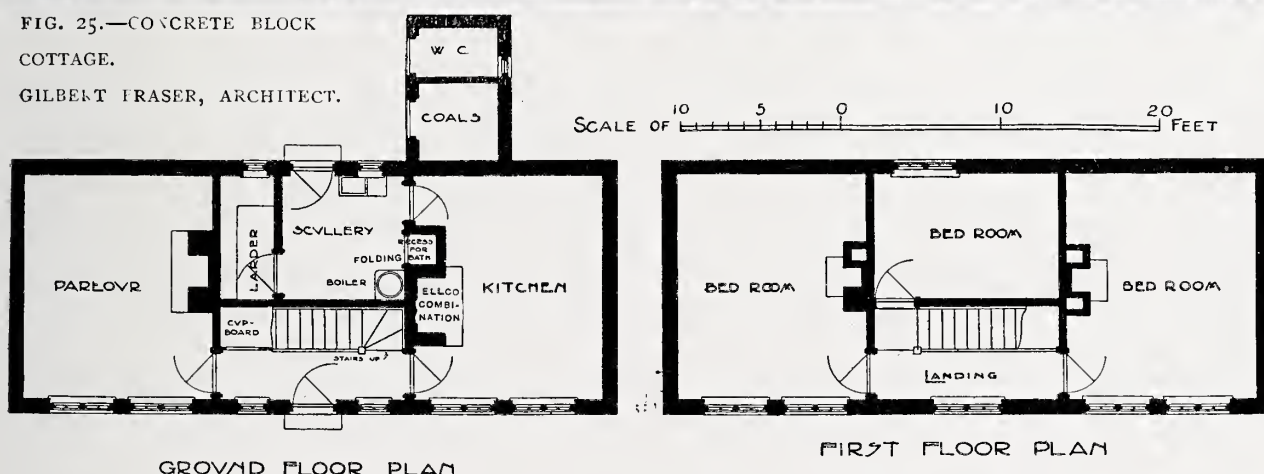
GROUND FLOOR

FIG. 17.—WEATHER-BOARDED COTTAGE. F. W. TROUP, ARCHITECT.

of "ca'canny," and often both builder and men are combined in an endeavour to fleece the public. The former are very often unlettered and ignorant men and they waste money. The better plan for a landowner is to buy materials himself, and engage labour direct under the supervision of his estate agent and estate clerk of works, or a good foreman. Speculative builders who have a continuity of work keep good men in regular employment, often paying them more than the minimum rate of wages, and this policy is not objected to by the trade unions, who will often assist by recommending good men. I have found the following piecework system to work well, and



FIG. 25.—CONCRETE BLOCK COTTAGE.
GILBERT FRASER, ARCHITECT.



I cannot see that it is open to any real economical or ethical objection. Standardised plans having been prepared, careful and full quantities are taken out, materials purchased, and men for the different trades to undertake the labour piecemeal are advertised for in the local papers. Plenty apply, submit bids, and sign an agreement with a time limit binding them to accept payment of a weekly wage amounting to the wages usually received under the trade union minimum rate during the continuance of the job, no matter what the value of the work done, or if they do not execute a due proportionate amount of the whole the value to be deducted. The men are thus bound to no special limit of hours, and need not

be at it all the week if they work hard, and at the end of the job they have a nice lump sum to take. Each man will have his mates, and a gang can be got together that will give every satisfaction. A rough check is to insist on one cottage being completed per week, before payment is made. This may often be the starting of a workman as a master man.

It would be easy to go on elaborating the subject further, with multitudinous hints upon constructional and decorative details, but exigencies of space forbid me touching upon other than general and more important features. The official report and awards of the judges are printed elsewhere in this number, and confirm many of the criticisms made in this article. H. KEMPTON DYSON.

Two Papers on Architectural Education.

Architecture, and its place in a Liberal Education. A paper read before the University Extension Guild. By Banister F. Fletcher, F.R.I.B.A. Price 1s. net. London: B. T. Batsford, 94, High Holborn.

The Training of Architects. By Professor C. H. Reilly. *The University Review*, Vol. I., No. 3. London: Sherratt and Hughes, 6d., July, 1905.

MR. FLETCHER'S paper, which is divided into two parts, "Architecture, showing its connection with history," and Part II., "Its place in the educational scheme of to-day," is, doubtless owing to the circumstances which called it forth, and in consideration of the audience to whom it was addressed, an appeal to the cultivated amateur to recognise and acknowledge architecture. "Is it not therefore time, in these days of enlightenment and in the interest of true as against superficial education, to provide for the study of architecture and its history in the curriculum of the education necessary for every man and woman?" To an audience of architects, the intellectual and historical apprehension of architecture has in past time carried its limitations with it. To the artist it is a part of the necessary platform or base from which he rises into the *art* of architecture, from which he designs and creates; but to the amateur, the man who apprehends by the intellect rather than by the heart, it becomes his shelter and his weighing-house. From it he measures what is being done in the world outside, by the storied elements of its industrious contexture he estimates the differences and discrepancies out of doors, and in the comfort of the familiar pictures of the past he looks coldly on the alien novelty of the worker who is grappling with the problems and the necessities of to-day. And the proposal to largely extend the annual output of such amateur carries with it only a restricted enthusiasm. Treated as a sidelight on history, in conjunction with it and illustrative of it, a masterpiece of architecture has its prime uses, as have poetry, literature, music and painting, etc., and may stand in their front as being the collective—whereas the other arts are the individual—voice of their time. It shows the aims and feelings of a people, deliberately and slowly realised; the daguerreotype of its character rather than an emotional snapshot, where the time element comes in to synthesize the shades of feeling that pass over the face of the sitter and the rest that comes from the deliberate control of the opposing tensions of the muscles. Treated thus as an adjunct to "the proper study of mankind" Mr. Fletcher's advocacy is sound, well timed; and as it carries conviction to its hearers, so, let us hope, it will prevail.

Professor Reilly's article is an important contribution to the question now much in the air,

and much on the conscience of architects at the present time—the question how an architect should be trained for his work; and then, rising out of the answer to this problem, how the various teaching bodies, now at work to this end, can be co-ordinated and brought into line, so that full advantage can be got of the powers that are being expended, by causing them to work, if not actually identically, at least harmoniously. Professor Reilly begins by pointing out the leading features of the Report of the Board of Architectural Education lately constituted by the Royal Institute of British Architects and other bodies represented, and explaining the reforms and alterations from present methods that are involved in them. He then proceeds to discuss the formation of architectural schools within the Universities. For the scheme of training advocated by the Board, so far as it had been laid down, he has nothing but praise, and sees no reason why it should not receive universal acceptance in this country; "the important question at once arises as to the part the Universities are to play in relation to it." Professor Reilly hopes to see the Fine Arts included in the recognised courses, not only at our newer Universities, but also at Oxford and Cambridge. "For such Universities, then, as already possess architectural schools, the question is the amount of general and liberal study that can be infused into a technical curriculum." He advocates that a student reading for a degree in architecture should graduate with a B.A. degree first. "Such a course, though involving five years at the University, three for the B.A. and not less than two for the technical curriculum, even if best in the long run, will mean too great an expense for the average student. To meet such, it might be possible to permit a portion of their technical subjects to count, according to their nature, towards either a B.A. or B.Sc. degree, so that their purely technical course afterwards, whether leading to a degree in architecture or to the proposed certificate of the Board, could be of less duration. Beyond these, again, there will always be the students who . . . cannot tackle a B.A. or B.Sc. course, but who may yet make excellent artists, and who must be provided for in the schools. These are the students who will start at once on the technical course for degree or certificate, which degree or certificate, under

proper safeguards, the Board should recognise in the case of properly equipped Universities in lieu of their own. The Board then, in this suggested arrangement, would throughout the land settle the minimum of training to be required from each student, while the various Universities would offer courses in slight variation or in excess of it, according to their local needs and opportunities. In this way the architectural degrees or certificates of the Universities would each attain its own standing and weight, as the various medical degrees have done long ago." This breathes a hearty spirit of co-operation, and if it can be taken as a general index of the attitude of the Universities, the Board will have the comfortable testimony that its existence is justified and accepted, and that both its aims—that of instruction and the accepted standard of instruction—will receive helpful furtherance from them. And, indeed, it is time for these reforms. Building was never more plentiful than it is now, and the educated public's view of an architect, as a constructor, never lower. The world knows, if only in a dim way, that an engineer's education is a very real and thorough thing, that the student works like a real apprentice at the shops as well as in the schools, and that by the time he emerges into the employable state he has learnt his business, and that he has got both training and knowledge as a background to his own abilities. But the craft of architecture—to the public—is more of a mystery in one sense, and in the other less. He gets his training in a vague way—behind the scenes; he is gifted with "taste," about which the old adage says there can be no dispute, and about which the occasions of dispute are without end. The engineer's strong position—"it must be so, by mere force of mathematics at lowest"—is not his; "it must be so, from the nature and capabilities of the materials," is no longer his. The ignorant questioning the architect has to confront is different from that so easily vanquished by the engineer in this, that it is not conscious of its ignorance—nay, more, it is very sure that it possesses more knowledge than the bare fact justifies. On the ground of "taste" the public does not hesitate to pronounce, brave in its conviction that in these catholic days each man is entitled to his own, without being at the pains to weigh what may be its worth; and the architect, having preached and taught the canons and formulæ of his art, *urbi et orbi*, finds at the critical hour that these engines which were for his defence and scientific victory are bent on him and ignorantly fired to his disaster. New materials and new processes start up around him, and find him unprepared, whilst specialists spring up, ready to handle the novelties

and to take them away from his management. In the minds of many, an architect appears as a kind of luxury—one of those things that add to the cost and difficulties of life. He is not needed "for practical purposes," but to give a kind of bloom to the building, like gilding in the hands of the decorator, and an aroma of culture—for that is still a matter of concern for those who consider they have a reputation to conserve and are earnest about their building. "Where there's smoke, there's fire." The architect has, in some measure, himself to blame for this impression of his functions in the public's mind. He took to talking about "the styles," "orders," "proportion," "mouldings"—and to talking very well too—subjects about which any amount might be said, and any amount was said—inconclusive subjects that have a fascination for all and sundry. And his audience failed to estimate the due importance the architect really gave to these topics. It naturally over-estimated them. It supposed and supposes that the architect is concerned only with the outer vesture of his art, and lets the organic structure underneath, and that supports it, grow as it may. The analysis of construction would fall dumbly on the ears of his auditors—the exposition would be a one-sided affair; for what could his hearers contribute, and what use could they make of instruction that has to depend so much on local and varying conditions? The knowledge that an architect has, and must have, got obscured by the light of his eloquence on comparative styles and rhythmical proportions; and the public, not seeing what lay in the shadow, thought it non-existent. And the lack of a visible education in these matters, so far as a negative can, gave substance to this impression. Moreover, something there is admittedly inadequate in these invisible and inordinate methods of education, which has precipitated the Board of Architectural Education—an admission which the public, if it chose, might plead in part justification of its attitude, if it only would be so good as to remember that this shortcoming is now in a fair way of being abolished. There is a great deal of architectural education going on throughout the country, and beyond this there is a very considerable equipment of technical appliance and instruction available—not at present being as much used by the students as should be, owing to the want of co-ordination and some sort of standardisation. It is pleasant to be able to hope that for the future this waste of time and force is not to be permitted, and the co-operation of the Universities will form a notable lever in the welding of the scheme of architectural education into efficiency.

HALSEY RICARDO.

The London Traffic Commission Report.

I.—LONDON UNDER THE PLOUGH; SOME THOUGHTS SUGGESTED BY THE REPORT OF THE TRAFFIC COMMISSION.

STRANGE reflections occur to the mind on reading the report of the Traffic Commission (or the able abstract which was given in *The Times* engineering supplement) or even on endeavouring to grasp some of its principal recommendations, and their probable effect upon the artistic or architectural aspects of our traffic-choked city.

Indeed, it would seem that London is in process of being throttled by the pressure of its own business. Its very means of locomotion and transport have brought it to a standstill, as it literally continually does so. It is a strange paradoxical position for a practical people to find themselves in. The efforts being made to extricate London from the consequences of its own extraordinary growth and development suggest the curious analogy of primitive man making clearances for living and breathing space in the primeval forest, and thus presents another instance of extremes meeting. The human forests of capitalistic commercial civilisation superimposed upon the results of the social and civic development of centuries, expressed and encased in the forms of brick and stone and mortar, present difficulties and economic complexities far more than meet the eye upon an apparently simple question of street improvement. Far beyond the scope of the pioneer's axe as a pathfinder, they furnish engineers, surveyors, and builders, borough and county councils, lawyers and financiers, with continual employment.

The very pressing question of how to relieve the congestion of the daily traffic in London led to the appointment of the Royal Commission, with an advisory board of eminent engineers, which has just concluded its labours, and embodied the results of their inquiries and recommendations in eight solid volumes.

One does not observe that the Commission included any eminent architects, and, presumably, the question was regarded as purely, or rather immediately, a practical one, to be dealt with by specialists, and solely from the engineering point of view, narrowed down to the by no means simple problem of how to relieve and facilitate the traffic of London. But it is hardly possible to consider a question like this, which involves the construction of new streets, subways, viaducts, and a whole system of tramways, without also touching questions seriously affecting the history, appearance, and architectural beauty of London.

Æsthetic considerations seem to be, as usual with public bodies in this country, ignored.

The Commission recommend a permanent board to deal with the problem of London traffic. So far, so good; but since this problem cannot be dealt with as wholly detached from the artistic aspects of London, which also have a definite value to its inhabitants, some provision should surely be made to secure the best architectural advice, just as it is considered necessary to have an advisory board of engineers. There ought to be co-operation from different points of view in these matters to ensure success in the carrying out of any "improvement" schemes.

The "improvements" which we have already with us are not always such as to inspire unmixed confidence that the new recommendations, if carried out, will be entirely successful, or even that they will be certain to accomplish their avowed objects of relieving the traffic.

We remember that when the Victoria Embankment was planned it was confidently asserted—and it was considered one of its chief recommendations—that it would immensely relieve the traffic in the Strand. But the Strand is as crowded, or more so, than ever, and the Embankment is only used by vehicles taking the direct stage from Charing Cross to Blackfriars.

The destruction of Decimus Burton's design at Hyde Park Corner, and the uncomfortable lopsided platz (presided over by Mr. Boehm's Duke of Wellington, and his four representatives of the British army) recently enlarged by a slice cut off the Green Park, has caused a bad block further on at the corner of Hamilton Place, where the tangle of cross-traffic is only prevented by a row of policemen—who ought really to be cast in bronze, and permanently stationed on that dangerous spot. Then the wide stream of mixed traffic flows on beyond the Green Park until it is brought up with a jerk in the narrow channel of Piccadilly. This is only one instance of what might be termed the bottle and neck principle of street improvement; but it does not seem very practical to widen a street in one place and leave it narrow in another, since traffic cannot be poured through a street like a liquid through a bottle! At St. James's Street the report states that the number of vehicles passing in a day of twelve hours amounts to no less than 20,474. At Piccadilly Circus (or what was once a circus) 27,050 pass. At the Marble Arch 29,320, at Hyde Park Corner 29,286. Charing Cross is not far behind with 27,768, the Strand (at Wellington Street) 19,743, Ludgate Circus 22,956, and the Bank 27,523.

The pressure is obviously at the chief crossing places where certain streets intersect. The Commissioners propose to relieve this by subways in

some places and viaducts in others; for instance, they propose "a viaduct at Blackfriars Bridge beginning at the centre arch and carried north down the centre of New Bridge Street and Farringdon Street, giving a roadway of 33 ft."! Also "a bridge across the Strand from the hill of Wellington Street on the north, to the north end of Waterloo Bridge on the south, to relieve the excessive congestion of traffic at that point"! Truly London traffic is appalling, but such suggested remedies as these seem equally so. Would not the remedy be worse than the disease, and could we be certain the bridges would really be used? What would become of the view of St. Paul's, already obscured by *one* viaduct?

The most important recommendations are, however, at least from the point of view of probable cost, the construction of two main avenues through London, 140 ft. wide, one from west to east connecting Bayswater Road with Whitechapel, passing through the city in the neighbourhood of London Wall, and the other from north to south to connect Holloway with the Elephant and Castle, passing by a new bridge across the Thames (another bridge!) near the western boundary of the city.

Well, it hardly needs an engineering mind to be convinced that the main thoroughfares of London ought to be about three times their present width for merely traffic purposes; but then the whole character of London would be changed. It is a question whether in some cases its prosperity is not connected in some curious way with its variety and smallness of scale. One thinks of the traffic in Bond Street, narrower in its middle than even a secondary street in a small country town. It is a fashionable, prosperous business street of small shops, art galleries, and tea-houses, principally; but what could be done with Bond Street? If (at unthinkable cost) its width were doubled or trebled it would lose its identity, and might become a broad but unfrequented street, while some new Bond Street or a more or less sufficient substitute would probably be found in the neighbourhood—so long at least as May insists on shopping near Mayfair.

The same thing might easily occur elsewhere. In regard to the proposed new streets or traffic furrows, for instance, one imagines that Bayswater on its way to Whitechapel, or *vice versa*, will want to stop in Oxford Street or Holborn, while it is scarcely probable that the Elephant and Castle would ever want to go straight to Holloway.

You can lead a horse to the water, but it does not follow that you can make him drink. You can by more complicated and expensive methods make openings for traffic, but you cannot compel people to use them.

A city like London has grown hitherto in a muddling and planless sort of way in response to the wants of its inhabitants in the main. The best engineering schemes cannot afford to ignore the trend of local and social custom and habit, and habit even in traffic is something to be reckoned with. London, unlike some other large cities of the country, has never taken kindly to tramways, except in the outskirts they may be said to be hardly practicable, and it must be confessed a tramway spoils the road for all other kinds of wheeled traffic, unless, indeed, the road is so wide as to practically isolate the tramway: but in any case the architectural effect is injured. No existing street or road through London is wide enough to hold a tram line, and, except Trafalgar Square (which is practically a flagged ornamental garden), there are no open squares or places to speak of which might form centres of communication for tramways.

A great tramway system for London is one of the principal items in the recommendations of the Traffic Commission, although it would seem that, long before such a system could be completed, the tube-railways will do the work of tramways far more efficiently for London, even if tramways are not in danger of being superseded by the motor omnibus.

The main plea for a tramway system is that it would afford cheap and easy means of transport for the army of workers pouring into the industrial parts of London in the morning, and out again in the evening to the residential suburbs, which with the extension of the tramways might still spread indefinitely in all directions. To those whose hope of healthier and pleasanter city developments is rather in the direction of decentralisation and limitation of size, such a development has no attractions, and can only be regarded as an encouragement to the continuance of the present industrial and commercial system with all its drawbacks and dangers. One must be careful to distinguish between schemes to meet immediate popular necessities and those which have in view the permanent welfare of the people.

The wants of popular transport in London have hitherto been supplied by the omnibus. The 'bus is the connecting link between many borough boundaries. It is the city of 'buses. Their routes as well as their numbers have extraordinarily increased; mainly, too, as the result of the increase in underground railways and the opening of new stations and termini necessitating cross connections. In fact it is hardly possible to doubt that traffic increases by reason of the very means adopted to relieve it; and this is another point to bear in mind in projecting new streets and means of locomotion and transport, together with the social fact of the increase of travel with the

facilities of moving from place to place. It appears that the average journeys per head of population have increased in 25 years from about 56 to, as the Commission estimates, 170 journeys. These are the figures for London, which it seems do not reach the standards in New York, Berlin, and Paris.

Other remarkable figures are given. For instance, about 360,000 persons actually spend the day in the city of London alone, and this number, it is assumed, must be taken to and fro six days a week, while 1,250,000 persons and 100,000 vehicles enter and leave the city of London daily, not to speak of the central or other districts.

The only answer of the practical man as to the best ways of facilitating the transport and locomotion of these appalling numbers, it appears, is (1) a tramway system (which depends upon local consent, and street widening to an enormous extent to make it possible); (2) cheap trains from new suburbs extending in every direction, with tube-railways coming in to serve as overflow pipes and distributors over short distances.

The idea behind all this is that of London as a vast warehouse where the main consideration is the delivery of goods on the shortest notice, and in the most expeditious manner. That human beings must be considered, from the transport point of view, as sacks of coal. Fill your wagons, put them on the rails, provide the locomotive power, set the machinery going, and—all will be well.

It is assumed that London is going on as she is now going for ever and ever, and that certain tendencies towards decentralisation may be ignored. Still, the works which such recommendations as those of the Traffic Commission involve, would necessarily take a considerable time, and possibly in the process of completion still further impede the impeded traffic of London.

To the ordinary observer there are many small causes which, though local, partial, and temporary in their action, yet, constantly felt in one place or another, in the aggregate seriously impede the traffic of London, and in fact may be said to be quite as much the cause of the blocks as the narrow streets and crossing routes. I mean the street works which constantly tear up the roadway and squeeze the traffic suddenly into a narrow channel in the midst of a wide thoroughfare. The incessant holes made to examine or relay gas or water pipes, drains, or telephones, are a continual source of stoppage in the traffic of London.

Why not municipal and continuous subways to carry all these subterranean ganglia, at least in all the principal streets? By these means London traffic would be certainly enormously facilitated, and a frequent and constantly recurring cause of

its congestion done away with, at probably far less cost than widening streets, since it would not involve the destruction of house property. It might be worth the attention of engineers and borough councils.

Another felt want in London is that of large open public places, piazzas, or circuses, at the main crossing points of the traffic, such as those above mentioned, at the Marble Arch, Hyde Park Corner, Piccadilly at St. James's Street, Piccadilly Circus, Charing Cross, Strand at Wellington Street, Ludgate Circus, and Bank. The lines of traffic could then be diverted and made to circulate around the sides of such circuses, which would, in addition to relieving the traffic, afford good opportunities for artistic architectural effect, not only in the buildings around them, but by a central fountain, clock house, or statue upon an island of refuge for pedestrians. The value of such circuses as methods of relieving traffic does not appear to have appealed to the Commission.

From the architectural point of view one would like to go further and clear noble spaces or piazzas in front of our great public buildings: the British Museum, for instance, and before the west front of St. Paul's, as well as the principal railway termini. Anyone who has driven through and about London must have been struck with the unnecessarily obstructive character of much of the vehicular traffic. The bane of drivers of passenger vehicles is the van-demon. The huge railway van piled with goods, which can so effectually block a narrow street, or, in the aggregate, even a wide one; the furniture van, the brewer's dray, the carrier's wagon, the tradesman's van, and the motor varieties of all these, either moving or stationary, together with the traction engine with its train of cars, again, are notorious and constant contributors to traffic congestion.

Could not the arm of the policeman, upon which the circulation of traffic now mainly depends, be lengthened and strengthened? I mean in the direction of the general regulation of London traffic. Would it not be well to regulate the passage of such huge vehicles as those mentioned above with all goods traffic in the streets within certain hours of the day, or even by certain routes?

Perhaps if we get a Traffic Board these things could be seen to, but in the meantime organisation and regulation would go far, even without street improvements, to remedy the congestion. It is a case of careful treatment as against surgical operation to bring the patient to health and normal condition—if, indeed, one may use the word normal in connection with London!

The plough of engineering enterprise may be driven through the length and breadth of London, and it may be only to sow the dragon's teeth of

future difficulties. For better or for worse, however, old London is disappearing and a new London is arising from its ruins. We are in the midst of the dust and confusion of change. It is, perhaps, at present rather the pick of the house-breaker than the plough of the engineer which is the implement most in evidence. We can only hope

that harmony may arise out of discord, and form and design out of chaos; but to let the configuration of a city depend wholly upon the shifting necessities of traffic does not seem to offer any security for the preservation of its architectural beauty or permanent improvement in its truer and higher sense.

WALTER CRANE.

Notes.

Iona Cathedral—Engineers and Architects—A Suggestion for Street Decoration.

THE cathedral at Iona, as a ruin, appealed very strongly to the affections of those who knew it. Not only did it show many local peculiarities, in its carving and otherwise, but (largely owing to its repair for use in the seventeenth century) it gave the impression of having been not so very long disused; and it bore the marks of its history, even if these could not always be interpreted with ease or with certainty. The natural feeling, on hearing of its proposed restoration, was, "Can't you let it alone?" This course was rendered impossible by the terms of the trust—that it should be made available for Divine Service. But it might have been hoped that especial caution and reverence would have been shown by the successive architects and by the Trustees in dealing with a building which was not only beautiful but in many ways unique. This has certainly not been the case; it appears, for instance, that there has been no adequate supervision of the work, a clerk of works having (recently at least) not been employed.

In some parts no more injury has been done than one expects from the average "restoration." The south choir aisle had lost a large amount of the cut stone in its doors and windows; in its repair excessively large stones were at first used—this has now been altered. As restored, it is commonplace, and what is commonplace is in this church more or less incongruous; also one cannot help thinking that more of the very interesting east window in the aisle might have been preserved and not renewed. Similarly, instead of the church being completely refloored, such old stones as remained (and not merely those of special interest) might well have been retained and supplemented.

Near the corner where the presbytery joins the choir aisle there was a curious composite erection, believed to have supported the seventeenth-century pulpit. It was conspicuous in the old cathedral, and, as a part of the history of the building, should have been retained, somewhere within it at all events.

The tower has been strengthened by inserting iron girders supporting the floors. If these were

necessary, they might at least have been less in evidence and the floors made to fit the corbels accurately. The roof has been covered with slates, which, except in one part on the south transept, are of the usual unpleasing colour; but there is one complete slate, preserved on the island, belonging to an old roof (possibly of the seventeenth century), which is similar. If such slates were to be used, they should have been as rough as possible, so that lichen might disguise them with all speed. As it is, the roof gives a melancholy appearance to the building.

That the choir and north transept (at all events) had flat ceilings, with rooms above them, is clear from the old corbels, the plaster, and other indications. The new roofs are open to the top; whether the old walls will stand the thrust of the new construction remains to be seen. But in any case this is emphatically not restoration; neither is the stripping of the plaster from the greater part of the walls, in which process traces of fresco-painting have been to a large extent inadvertently destroyed. In the north transept, where the wall had been broken down, a Gothic wheel-window has been inserted, between Romanesque pillars; each of these features—and still more their combination—might have been designed by a country builder. This window would have opened into the upper storey of the domestic buildings, as is plain from any point outside; it is therefore an obvious absurdity. About the exact history of the short north choir aisle, or sacristy, only a very bold man would dogmatise; it is, however, clear on the outside that a complete aisle of some kind has been at least intended. The two arches were walled up, but so as to leave the pillar supporting them visible, and the partition fixed, or "sealed," by the insertion of a late mediæval doorway of considerable beauty, in the local style. Though here especially prudence would have counselled "letting it alone," these arches have been opened up (a very large part of the work in them being renewed), and since the top of the doorway comes above the base of the elevated pillars, a pediment has been made over it. This looks ugly and heavy, and gives additional cause for regret that

the old arrangement was interfered with. But, further, this pediment, which is necessarily connected with the doorway, and comes close down to it, has been ornamented with sculpture of modern character and of aggressive size (being almost on a level with the eye) of a monster and an angel. The effect is, at all events, glaringly incongruous. But these and the wheel-window, with its arch, are (in the *Scotsman* and *Glasgow Herald*) defended by the present architect, who designed them, on grounds not often seen—in print, at least. The latter, it is stated, is “in no sense a restoration; it is a new design, adapted to altered conditions, yet harmonising generally with its surroundings”—which it certainly does not do. The sculpture “may, if done after the manner of the time, carry some truthful message down to future ages.” The designer’s opinion as to the value of his original work does not seem to be generally held, while his candid statement places the Trustees in an unpleasant position. They have asked for subscriptions for restoration; in the notice on the steamer the object proposed is still less ambitious. It is now clear that they have allowed the money to be largely spent on what is certainly not restoration, and even on what does not profess to be such, with the result that an ancient building of unique character has been to a great extent spoilt.

ARTHUR C. CHAMPNEYS.

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AN engineer who has had a large and trying experience with architects has put the following notes at my disposal. He says—doubtless with considerable truth—that the engineer’s point of view as regards architects is usually of too sacred a nature to find expression in ordinary language, and in setting down these words of advice and suggestion he has endeavoured to keep as far as possible within the limits of ordinary dialectics. He writes:—

“From an engineer’s point of view a large number of architects never seem to master the fact that architecture does not only consist of the assembly of various parts to form a building pleasing to the eye (and in most instances a replica of some building designed by their predecessors). Let this idea be cast aside with the art classes and velvet coat. To design a building for public use, start on the work as business men, and consider from the very beginning that the building when finished is for the *public use* and convenience, and that every possible requirement must be foreseen. Meet the engineer, and find out his requirements as regards space for the heating, ventilating, lighting, and lifting machinery, and when all that is arranged, the true architect will start on his work. What would

happen in a shipbuilding yard if the naval architects delivered the hull over to the engineers with a large girder fixed right across the engine-room, and no possible chance of getting the machinery into place? I am afraid the engineers would take the matter into their own hands, and remove the obstruction, and at the same time find some other way of getting the necessary strength without the girder. One will say such lack of foresight is hardly possible; but in designing large public buildings we have equal lack of foresight turning up every day. In a large hotel contract in this country a short time ago the architect found it necessary to build in an extra pier under a large hall, as his girder strengths were under-calculated. The pier was built and all seemed well, until the engineers for the electric light came along to put in the generating plant, and the pier was discovered to come right in the centre of one of the engine beds. The result was that, instead of a good belt drive for the dynamos, a special arrangement of chain drive and counter-shafts had to be adopted. The total effect as worked out in pounds, shillings, and pence was very bad for the unfortunate owner, and the blame as usual was placed on the broad shoulders of the engineer.

“A lift is now almost as necessary as the staircase in a building (and used much more), yet it is about the last thing the architect thinks of. ‘Oh, fix the engine somewhere in the sub-basement out of the way,’ says the architect, so out of the way the engine is fixed in every sense—quite out of the way of the attendant who should oil and clean it, and out of the way of the inspecting engineer who comes to examine, and there it lies until some day the dirt gets the master hand. Then, let us run for—oil and waste? No. Let us run to the telephone to tell the makers what bad engineers they are.

“Would the designer of the building place his grand piano in the sub-basement? I think not. Yet the electric-lift engine has fifty times as much wire, as many parts, and costs twice as much; still, for all that, down in the damp out of the way is the place for the hard-working machinery. Architects pride themselves on the precedent and traditions of their craft. Well, in the case of the lift engine, let us go back to the early Norman fortress, and we will find a special room reserved for the drawbridge-lifting winch. The room is not in the deepest dungeon under the moat, but on the ground floor, and within easy reach of the armoured engineer in charge. It may be claimed that a true architect cannot attend to the two branches—architecture and engineering; but to design a large public building of the present day the architect must be like the marine—architect

and engineer too. We engineers may merit the accusation that beauty in engineering departed with the old beam engine; but engineers of to-day at least know one thing, and that is the practical side of their profession." D. B.

* * * * *

THE Corporation of Dublin is making a very pleasant virtue of a commonplace necessity. It is an answer to the dreary question, "What shall we do with our old street gas standards?" Derelict gas standards, deprived of the normal repainting, bespattered with mud which no one is interested to remove, are a melancholy feature in streets which have gone over to electricity. In Dublin they manage these things better, or rather are making a beginning of better things. The lanterns are being removed, and their place taken by iron baskets containing flowering plants, which give to the street a gaiety and freshness quite extraordinary. The present writer is unhappily ignorant of the authorship of this delightful idea, but was informed by a communicative

Dublin jarvey that the Corporation found it more economical to provide the simple iron basket than to uproot the standard and do the necessary repaving caused thereby. The effect is so delightful that one can only wish more power to the municipal elbow—and more derelict lamp-posts. There is, moreover, a practical and economical consideration not to be despised. It seems by no means clear that electricity has come to stay as a street illuminant, if one can judge from mutterings from the City of London and the threatening of a return from electricity to incandescent gas. Perhaps municipalities will be found later to regret their haste in removing gas-posts that they may in the future want to replace. In the meantime their unrevolutionary cry might well be "Flowers au lanterne." While the partisans of gas and electricity are fighting their illuminating battles, the casual wayfarer will be able to rejoice in uplifted spots of colour and freshness in our not too beautiful streets.

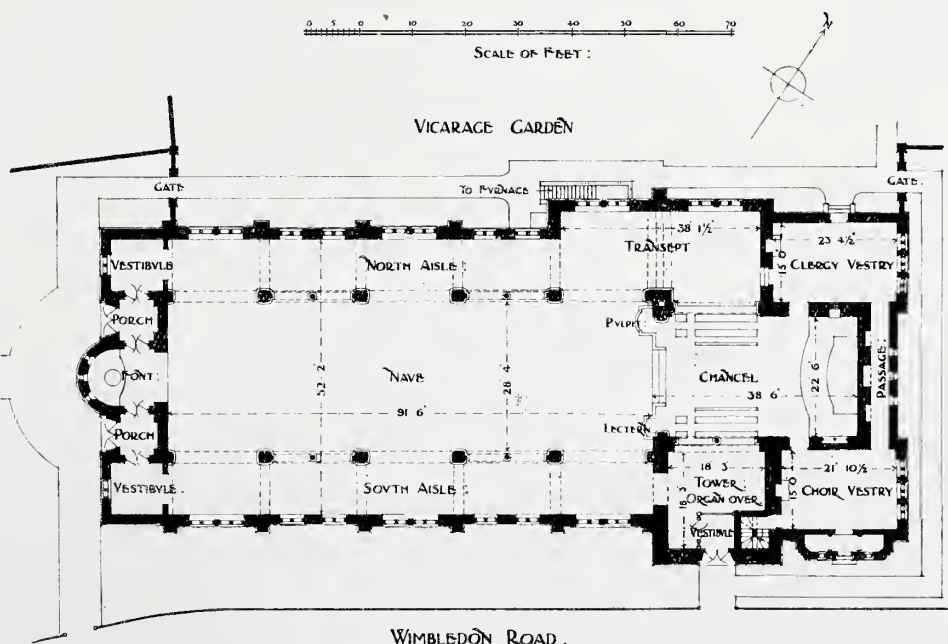
LAWRENCE WEAVER, F.S.A.

Current Architecture.

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W.—The church was dedicated on April 30, 1904. One of the chief conditions laid down by the committee was that the church was to be very well lighted. It is faced inside and out with red Wrotham bricks from Messrs. Pascall's fields, with dressings and linings of chisel-faced Bath stone, and roofed with Westmorland slates. The small columns in sub-arcades and sedilia are of fine-axed grey granite. At present the tower is only built high enough to take the organ (which is in a gallery), and has a temporary roof. The chancel is paved with Portland stone, with borders and steps of blue Pennant stone. The pulpit, reading-desk, and wall are in three sorts of stone: Green Quarella, Hopton Wood, and Beer stone. The font is of Green Quarella on a Portland base. The choir stalls, clergy seats, Communion rail, Commandment tables, and paneling forming reredos are of oak. The stalls have a little inlay in mahogany and English walnut. It

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is intended at some future time to fill the large lunettes in nave arcade with figure subjects in modelled plaster. The church was designed to be seated with chairs, but when nearly complete the committee decided to have pitch-pine benches. Wiring for electric light has been put in, but owing to the Supply Company being at present unable to bring up their mains a temporary installation of acetylene gas has been made, which works well. The general contractors



CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON.
GODFREY PINKERTON, ARCHITECT.

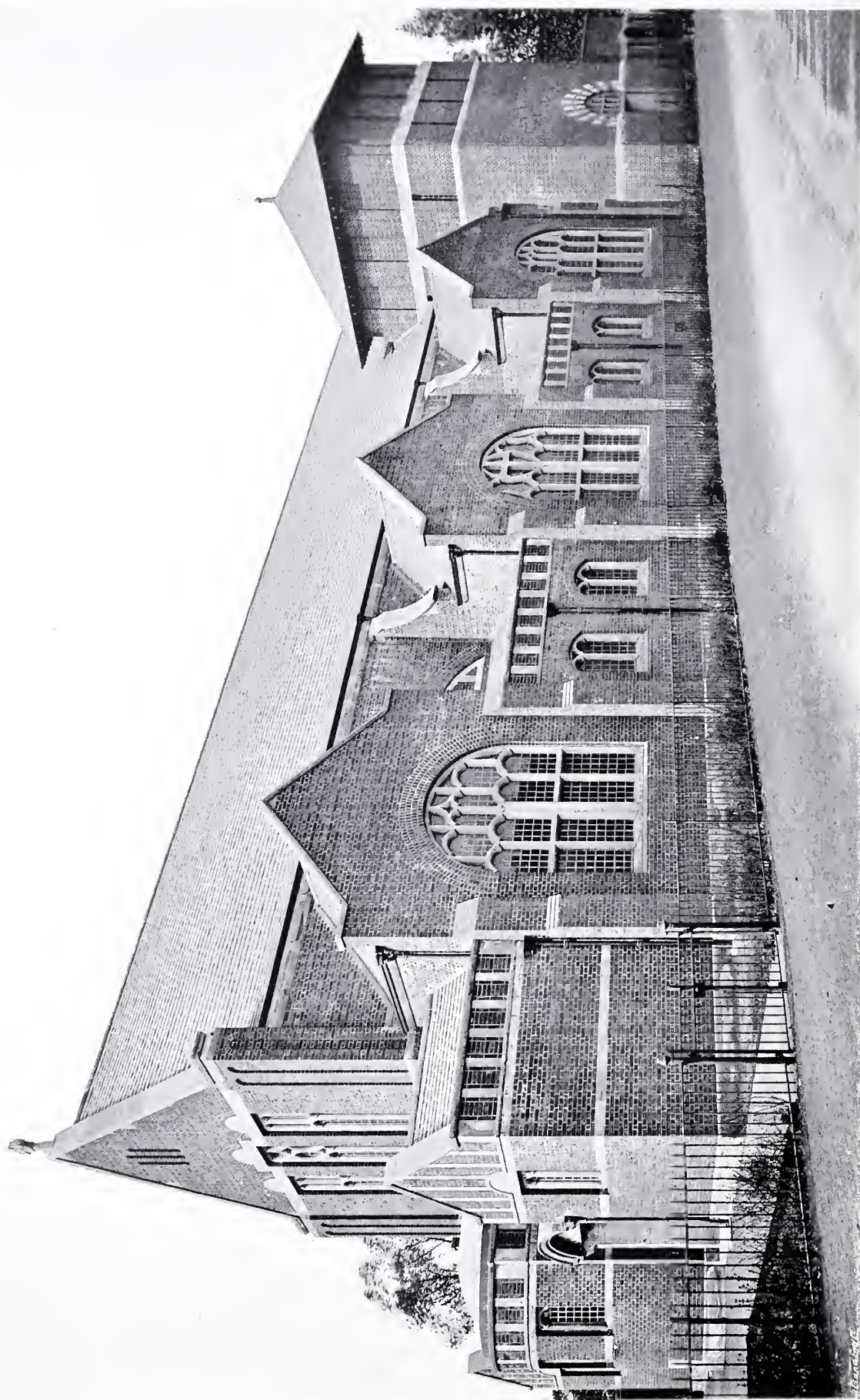
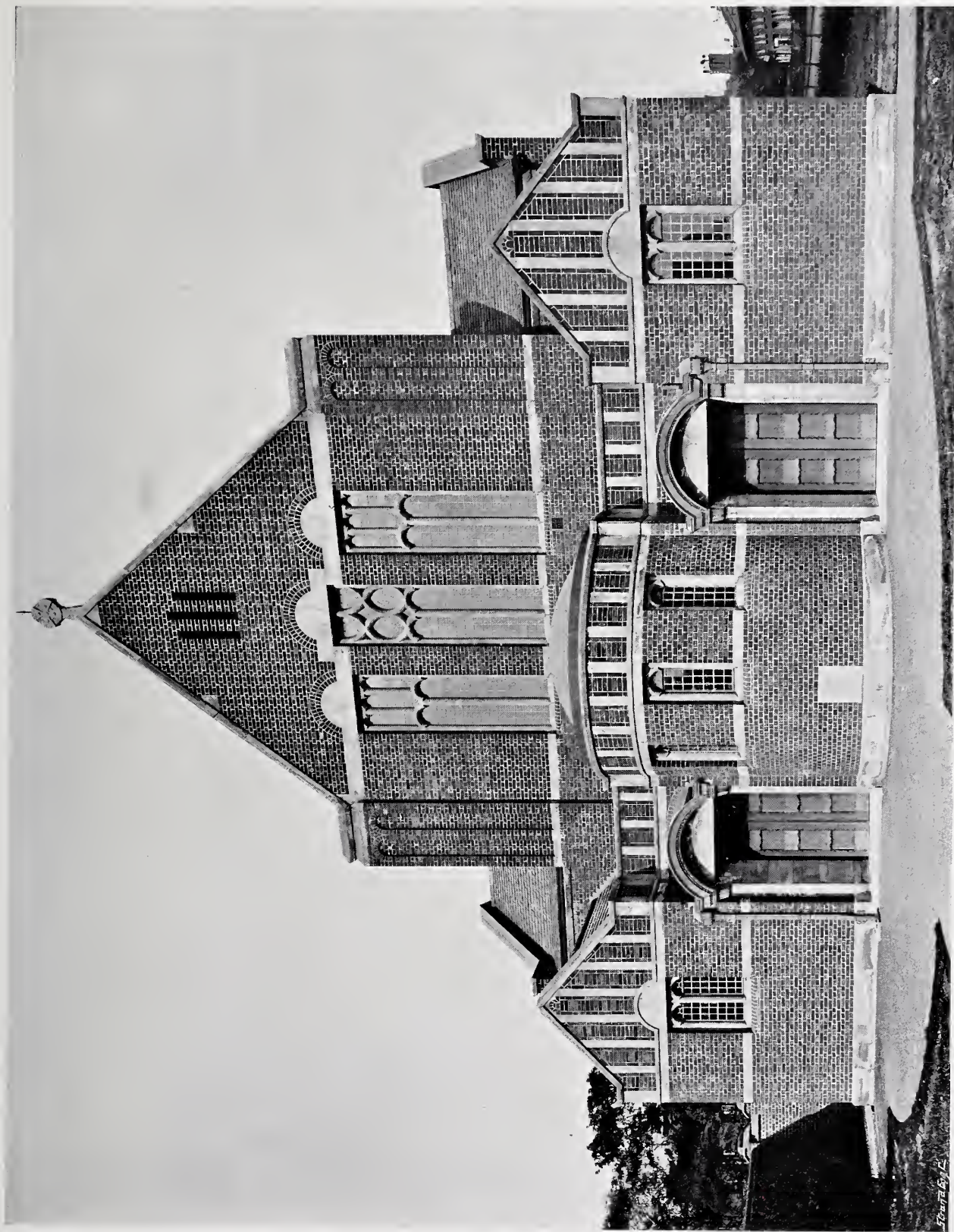


Photo : F. Dockree.

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON. FROM THE SOUTH-WEST.
GODFREY PINKERTON, ARCHITECT.



Phot.: E. Dockree.

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON. WEST FRONT.
GODFREY PINKERTON, ARCHITECT.



Photo: E. Dockree

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON. INTERIOR, LOOKING EAST.
GODFREY PINKERTON, ARCHITECT.



Photo: E. Dockree.

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W., LONDON. THE SANCTUARY.
GODFREY PINKERTON, ARCHITECT.

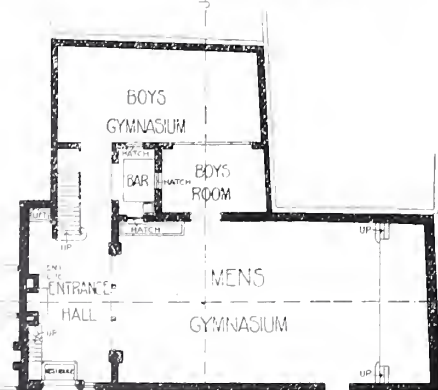
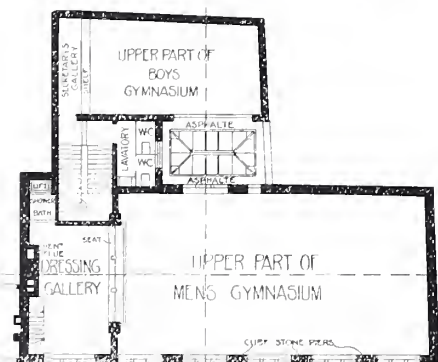
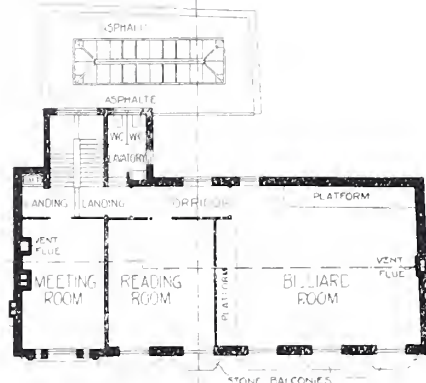
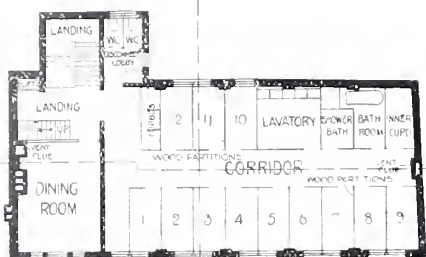
*Photo : E. Dockree.*

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON. CHANCEL AND ORGAN LOFT.
GODFREY PINKERTON, ARCHITECT.



Photo: E. Dockree.

CHURCH OF ST. MARY THE VIRGIN, SUMMERSTOWN, S.W. LONDON. NORTH AISLE, LOOKING WEST.
GODFREY PINKERTON, ARCHITECT.

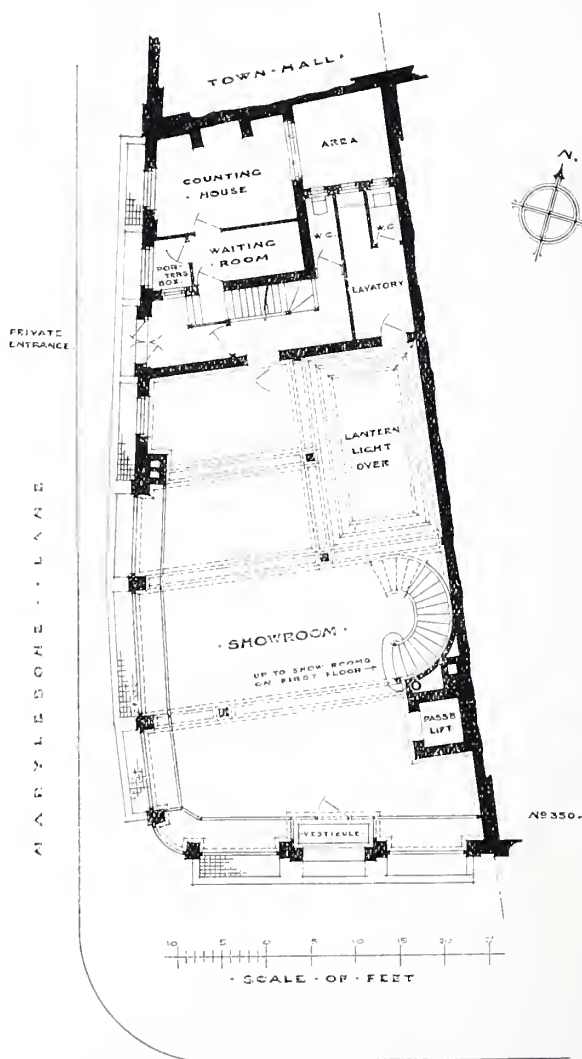


SCALE OF 0 10 20 30 40 50 60 FEET

ST. JOHN'S INSTITUTE, WALWORTH, S.E. LONDON.
PLANS. W. DUNN AND R. WATSON, ARCHITECTS.

both for foundations and superstructure (separate contracts) were Messrs. W. Johnson & Co., of Wandsworth Common. The font and cover were made by Mr. L. A. Turner, who also modelled and executed the other carving, both in stone and wood, from the architect's drawings. The glazing was done by Weldon & Co., of Croydon. Seating in nave and aisles by P. H. Barker & Co., of Hitchin. Heating by Mr. John Grundy, London. The architect was Mr. Godfrey Pinkerton, of 10, Lincoln's-Inn-Fields.

ST. JOHN'S INSTITUTE, LARCOM STREET, WALWORTH, S.E.—This institute was built in 1901 as a club for working men and boys. The floors are all constructed in concrete reinforced with steel straps hooked over the main girders, which are spaced at ten feet centres and are also cased in concrete. The building is heated throughout with hot-water pipes and radiators. The builders were Messrs. J. Marsland & Sons, of 1, York Street, Walworth, S.W. The heating was carried out by Messrs. J. Jeffreys & Co.,



OXFORD STREET

352-4 OXFORD STREET, W. LONDON.
GEORGE HORNBLOWER, ARCHITECT.



ST. JOHN'S INSTITUTE, LARCOM STREET, WALWORTH, S.E. LONDON.

Photo: E. Dockree.

W. DUNN AND R. WATSON, ARCHITECTS.

11, Old Queen Street, Westminster, S.W. The electric lighting was carried out by Mr. J. C. Christie, 3 and 5, Mansell Street, Aldgate, E. The architects were Messrs. W. Dunn and R. Watson.

352-4, OXFORD STREET, W.—The fronts of the building shown in the illustration are in Portland stone, with a grey granite plinth at foot-way level; the roof is covered with Tilberthwaite

green slates; the joinery work of the shop fronts and range of first floor windows is in darkly finished Moulmein teak. The internal fittings on the ground and first floors are in Austrian wainscot. Messrs. Hall, Beddall & Co. were the general contractors; the wood and stone carving was carried out by Mr. J. W. Sparrow; and the architect was Mr. George Hornblower, F.R.I.B.A.

*Photo: S. B. Bolas & Co.*

352-4, OXFORD STREET, W. LONDON.
GEORGE HORNBLLOWER, ARCHITECT.

A Sketch of Irish Ecclesiastical Architecture.

IV.—ROUND TOWERS.—PART I.

THE Irish Round Tower has the general appearance of a lighthouse. Its height varies from 50 to 125 ft., and it is—at the ground level—from 40 to 60 ft. in circumference. It generally rises from a plinth, or even from two or three plinths; though the Tower at Clondalkin stands upon a projecting base of masonry 13 ft. high. The greatest thickness of its walls is usually from 3 ft. 6 in. to 4 ft.; they become thinner towards the top as the Tower diminishes in breadth. Its doorway is nearly always elevated above the ground, the interior measurement of the Tower at this point being from 7 to 9 ft., or sometimes more. It has four or (usually) more stories, which are indicated inside by off-sets, corbels, or holes for joists, the floors having been nearly always, and the connection between them invariably, constructed of wood. Also on the inside wall (above the lowest story) projecting stones are often inserted, and at Tusk one of these is like a large hook, while at Dysert Œngus, near Croom, there are holes apparently for pegs; all these were probably for hanging up books in satchels and other valuables. There is nearly always one window to each story, except the top one; this generally has four, which usually, but not in all cases, face the cardinal points. The doorway is either flat-headed or semicircular; the windows have flat, round, or triangular heads, but what is a semicircular head outside is sometimes square inside, and a head triangular externally may internally be semicircular or square. The openings have jambs more or less inclined, but are usually not

splayed. The Tower should end in a conical roof, but for this, in much later times, battlements have in some cases been substituted, and in very many instances the top part is (or has been) ruined; at Donaghmore (near Navan) it has been imperfectly restored. The great majority of the Towers do not form part of any other building.

These Round Towers were, beyond almost all ancient monuments, a subject around which the antiquarian imagination played with irresponsible exuberance until it was checked by Petric's more rational investigation. They were of enormous antiquity, and therefore Pagan. They were tombs; they were fire-temples, of Persian origin; they were Buddhist temples; they were copied from the Phœnicians; they were astronomical observatories, or minarets from which to proclaim Druidical festivals. Or they were first built by the Danes; they were intended for anchorite pillars, like that of St. Simeon Stylites, or for penitential prisons. These various theories were supported by unfounded assumptions, mis-translation or false etymology, misquotations of existing and quotations of non-existent works. And along with these the true history of them appeared—in fragments.

After the work of Dr. Petric in clearing away the rubbish and establishing a sound theory of the Towers, and of Lord Dunraven and Miss Stokes in strengthening this further, while they supplied the necessary modification to the very early limit of date supposed by Petric, it might well be thought superfluous, so far as the main conclusions are concerned, to do more than to re-state and illustrate these. But there is a considerable number even of well-educated people who still think that some mystery hangs about these Towers—that there may be something in the old speculations after all. I even saw a few years ago a letter, printed in a leading London newspaper, which founded some argument or other against Christianity on one of the wilder theories regarding Irish Round Towers, as if it were accepted fact. It seems therefore better shortly to state some of the reasons which prove the rational view, as well as the conclusions themselves.

(1) These 'high, narrow, and also round' towers were 'ecclesiastical,' as 'Gerald the Welshman,' at the end of the twelfth century, calls them; they have, or have had, invariably a church or churches near them. 'The (apparent) exception proves the rule,' for, where there is now no church near, there are proofs of its former presence—as at Antrim, in the recorded statements of those who cleared away the last remains of the church, and in the human bones found at its base. Nor can they have belonged to Pagan cemeteries, subsequently adopted by Christians. For the Irish seldom (at all events) continued to use the Pagan burial-grounds; a sharp distinction is drawn between



CLONDALKIN.



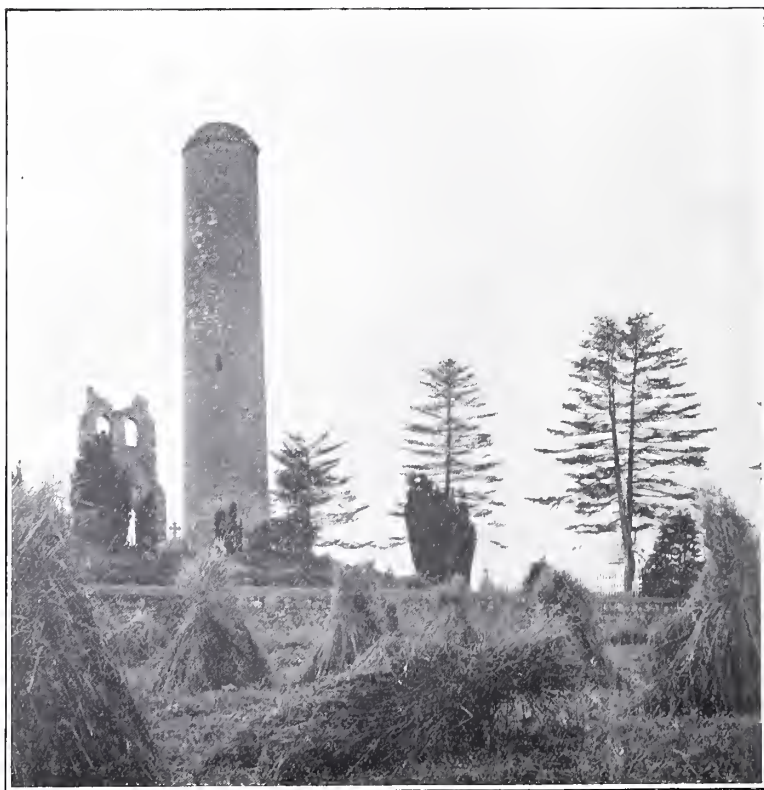
ARDMORE.

Christian burial and the 'cemeteries of the idolaters' in old Irish writings, and there are no Round Towers connected with the great Pagan cemeteries. At Kilkenny the Tower was found to stand over some graves, the skeletons in which lay with feet to the east, and from the yielding of the foundation the top of the tapering Tower actually overhangs the base at this point. Further, the door of the Round Tower nearly always points to the door of the church, or one of the churches, from near by—at Kilkenny, where the door of the Tower looks away from the Cathedral, that church is of later date, and has no doubt superseded a group of churches on the hill. Usually, therefore, the Tower is west of the church, most frequently to the north-west—perhaps in order to leave more room for burial in the more favoured quarters of the churchyard—but occasionally it stands to the south-west, as at St. Caimin's, Iniscealtra.¹⁴ At Dysert O'Engus the church door is, as has been said, in the south wall, towards its west end, and here, too, the Round Tower is 'convenient' to it.

(2) The Round Towers were for defence—refuges into which the monks or clergy might flee, taking with them their books, relics, and church plate. This conclusion is suggested by their position with reference to the church door. It is clinched by the facts that the doorway is almost always raised above the ground, usually to a

height of from 6 to 15 ft., and that many (at least) of the Towers show signs of having had double doors and secure fastenings for them. In the year 1838 Dr. O'Donovan was told by an old man living on the shores of Lough Derg, near Iniscealtra, or Holy Island, that he had seen an iron door in the entrance to the Round Tower there. And traces of its fastenings and fittings were then still visible, as they still are, or were until recently, in the Towers at Kilkenny and Fertagh. The windows also (though these are so few, they tend to the safety of a party attacked) are almost always near the level of the former wooden floors, which would be convenient for dropping stones or shooting arrows upon the besiegers. And a good many of the Towers have a large opening just over the doorway, as at Swords, near Dublin, or a little to one side, as at Antrim, doubtless for a similar purpose, like the 'machicolations' and other contrivances defending the entrance to the later castles. Persons trying to force the church door would also (in most cases) be exposed to the arrows shot from this opening, and from the door-

way. This use of the Towers as fortresses or refuges is indicated by entries in the Annals, such as that in 950 A.D. 'the *cloitech* [belfry] of Slaine was burned by the foreigners [Danes] with it full of relics and distinguished persons, together with Caeincachair, Lector of Slaine, and the crosier of the patron saint,



DONAGHMORE.

¹⁴ See illustrations in Article II.

and a bell, the best of bells.' Traces of such burning still remain in some cases; a quantity of charcoal mixed with burnt bones was found in the basement of the Tower at Kilkenny; in 1156 'Eochaidh O'Cuinn, the Chief Master, was burnt in the *cloictheach* of Ferta,' in a raid, and 'the Round Tower . . . of Ferta, situate about 12 miles north of Kilkenny, is split, as by fire, from top to bottom, thus affording a singular confirmation of the Annals.' Often, however, the burning of the woodwork would no doubt leave the thick stone walls more or less completely intact, as has apparently been the case at Monasterboice, where, in 1097, 'the *cloictech* . . . with its books and many treasures was burned.' There is plenty of evidence to show that these Towers were used as places of refuge—sometimes unsuccessfully.

(3) A third use of these Towers is indicated in a quotation given above, and in an entry under the year 1020:—'Armagh was burnt . . . and the *cloictheach* with its bells.' These Towers are now always (in Irish) called by this term, which means 'bell-house.' And if it is contended that this name has only been applied to them in later times, 'bell-houses' are frequently mentioned in the Irish Annals, there are no other early buildings to which the name can possibly apply except towers, and of these there are (I believe) none of early date which are not round, 'according to the custom of the country,' except, perhaps, the square tower attached to a church at Iniscleraun, an island in Lough Rec. Further, these towers, with their openings at the top, are adapted to this purpose—'a dinner-bell rung at the top of Clondalkin Round Tower was heard a hundred feet off as if it had been rung close by on a level ground.'

(4) That they were used for watch-towers was the opinion of Viollet-le-Duc, and this is, of course, a natural



GLEN DALOUGH.

use for them; on account of their height they command a wide view, overtopping even the smaller rises of ground. This is very markedly the case at Clonmacnoise; here O'Rorke's Tower, though, since its repair after the lightning knocked off its head in 1835 (and without its cap), it is one of the lowest, only 62 ft. high, is visible not only for a long way over the country on the right bank of the Shannon, and up and down the river, but for some distance also across the low hills of glacial deposit on its left bank. Even if they were not primarily intended for watch-towers, they must have been used as such; but Dr. Petric found reason to believe that the direction of the uppermost windows corresponded in many cases with the old lines of thoroughfare leading to the monasteries.

(5) They would at the same time naturally serve as landmarks to guide persons to the church or monastery. I have found them the greatest help in this way myself, but they were much more necessary when many parts of Ireland were far more thickly wooded than the country is at present. It is quite likely that a light would be shown in their top windows at night, as in the much smaller towers, called *Lanternes des Morts*, in certain French cemeteries, and as was the case in a tower at Winchester built in the tenth century. Thus the Round Towers served 'éclairer ou guetter.'



CLONMACNOISE. GENERAL VIEW.

(6) And (whether this was at first intended or not) they certainly give unity and dignity to the ecclesiastical establishment over which they seem to preside, including as this so often did several churches of small size (not necessarily or usually seven) with other buildings collected in a group and surrounded by a 'cashel,' though each often stood in its own subordinate enclosure; many traces of this arrangement are to be seen at

Iniscealtra. It is quite unfair to judge the appearance of a Round Tower taken by itself; it existed as a part of the monastery, and is appropriate only when it is seen in its proper connection.

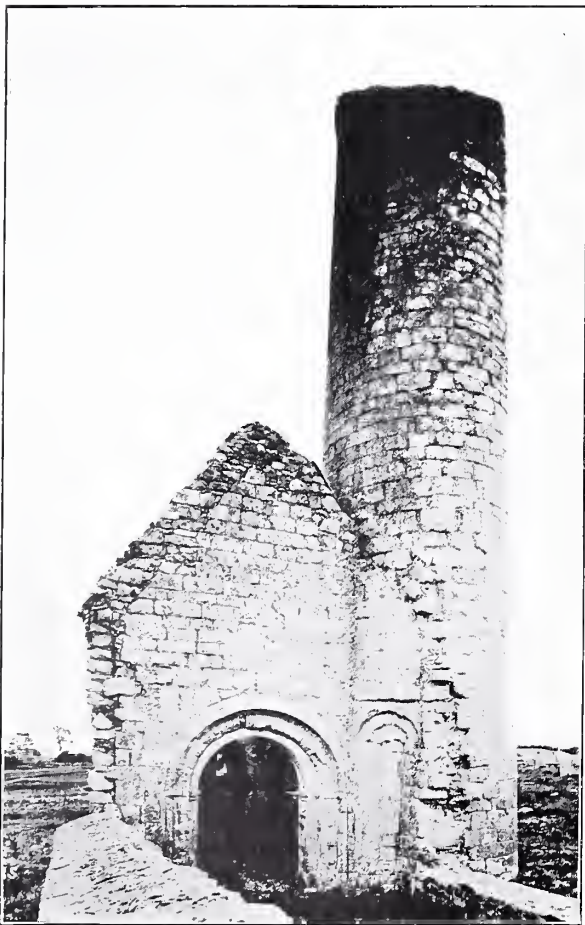
As regards the date at which these Towers were first built, this is placed by Miss Stokes at about 900 A.D., and the estimate is generally accepted. Of course Towers, round or square (which might conceivably have been imitated in Ireland), are much older than this; besides still earlier examples¹⁵ there is, for instance, in a Greek MS. ascribed to the seventh or eighth century, among the illustrations to the history of Joshua, a picture of Ai having round towers with conical roofs at the corners of the city walls. There are also still existing two towers, square, but in other ways bearing some resemblances to the Irish type, in central Syria, among those many buildings which were in all probability finally deserted at the time of the Mussulman invasion (A.D. 634-638); we have already seen apparent signs of connection between Ireland and the East in early times. Further, a passage in Adamnan's *Life of St. Columba* has been thought to date back the building of an Irish Round Tower to the sixth century, where it is related how, through the prayers of the saint, a man was miraculously preserved who fell from the top of the 'Great House,' called in the title to the chapter (III. 15) 'the Round Monastery,' a part of the establishment being then built under St. Columba's



CLONMACNOISE AFTER RESTORATION.

direction at Durrow. But this was doubtless a wooden building. Besides other considerations already mentioned as to the date of stone buildings in Ireland, if in St. Columba's time a stone tower could be built at Durrow, it would be strange if some part of his chief monastery at Iona had not been of stone. But we know that this was of wood, though there was plenty of the other material at hand.

But it is to the invasions of the Northmen in the ninth century that the general building of towers connected with churches or monasteries is attributed by Viollet-le-Duc, in France at all events. And there are plenty of proofs that towers resembling those in Ireland were built at and about that date on the Continent. Thus a tablet in relief in the library at St. Gall, ascribed to an abbot who died in 912, has on it, besides other buildings, two round towers roofed with cupolas, and having several oblong windows on each floor. And the elaborate plan (with a description) for a re-building of the same monastery in 829 shows two round towers standing on each side of the main church's western apse, a short distance away, but connected with it by two passages; the ascent was to be by a corkscrew stair, 'for overlooking everything.' That St. Gall was an Irish foundation is interesting, and perhaps important. And in England the old cathedral at Winchester had, at least before 971, a tower adjoining its ornamental doorway; this tower, whether of wood or stone, had a cupola-shaped roof ('*Turris exat rostrata tholis*,' says Wolstan, writing about A.D. 1006). The church built by Æthelwold at Abingdon in the latter part of the tenth century had a round bell-tower. Round towers with conical roofs are represented on a Carlovigian ivory plaque, and round towers flanking a church



CLONMACNOISE BEFORE RESTORATION.

¹⁵ There were found at Pompeii paintings of country houses with detached round towers (of no great height) close by them;

the coincidence is curious. See Gell and Gandy, *Pompeiana*, 3rd ed., plates 57 and 60.

on a Byzantine ivory, both of the eleventh century and both in the South Kensington Museum. Similar towers with cupola roofs are illustrated in the *Benedictional of Archbishop Roberts*, of the end of the tenth century.

And though the round church towers have, except in Ireland, mostly been superseded by later types, there are enough instances actually remaining to support such records, and to show that in the tenth and eleventh centuries the Round Towers of Ireland would not have seemed by any means so unusual as they do at present. At Épinail, in Lorraine, a round tower very closely resembling the Irish type in its tapering and other features is attached to a transept supposed to be of the tenth century. The campaniles at Ravenna are probably all of some date later than Charlemagne; that of S. Apollinare in Classe, 140 or 150 ft. high, is detached from its church. There are two round towers at the

western corners of a church at Gernrode in the Hartz; this church is said to have been founded in 960. The round tower at Nivelles, attached to a church dedicated in 1045, has several bands like those at Ardmore. A good many other instances might be quoted from France, Belgium, Switzerland, Germany, and Italy, still existing or recorded, which, if not themselves the model for the Irish Round Towers, had a common origin with them, and show that the type was formerly not an unusual one. It may be noticed that it was just the supposed unique character of these Irish towers which suggested the assigning to them of some strange origin and 'prehistoric' date.

A. C. CHAMPNEYS.

(To be continued.)

The photograph of Clonmacnoise before restoration is by Langfrier, Ltd. The rest are taken by the author and prepared by Messrs. Seaman, of Ilkeston.

Books.

THE CARNEGIE DUNFERMLINE TRUST.

The Carnegie Dunfermline Trust. Scheme for Pittencrieff Park and Glen and City Improvements. Thos. H. Mawson, Hon. A.R.I.B.A.

MR. MAWSON, as one would naturally expect, reports to the trustees more as an æsthetic than as a social reformer. His proposals may in a sense be said to be tentative in detail, but clearly to define certain principles. He very truly says that only by acting on a well-considered plan can anything really worth doing be accomplished. "Given a worthy ideal, a continuous policy, a substantial forward movement which will not turn aside from its purpose, patience to see that all improvement takes time—given these, anything is possible."

It is, of course, difficult, if not impossible, to criticise at all adequately the proposals contained in this report without an intimate acquaintance with Dunfermline and its surroundings; but certain features stand out on which a word or two may be said.

A study of the plans makes it clear that in adopting some such scheme a very great change in the character of the town is effected. The old public park is brought into direct relation with the new park and the city, instead of being isolated, and an attempt is made to weld the whole into one "City Beautiful." The centre of intellectual activity is in the Town Garden, where, arranged in a double crescent, with a broad road and grass between, are the concert hall, picture galleries, and technical schools, designed in a classical manner, with towers at the horns of the crescents. A perspective sketch is given of this. The domed central feature strikes one as being a little small, and the towers are probably only in the sketch stage and are not to be considered too seriously. The idea is a good one. The perspective sketch shows a deeper and more imposing curve of the crescents than the plan suggests.

The scheme for new roads is distinctly ambitious, and cuts rather ruthlessly through buildings and streets with no special regard for the existing alignment. In the centre of the town is a cleared space of very nearly

two acres. A boulevard about a mile long and 160 feet wide cuts through the town from north to south, and finally rather trickles away into the country beyond. All this is undoubtedly "fine and large," but is the canvas big enough for the picture?

Mr. Mawson's views on the eternal housing question seem to me to be thoroughly sound. He frankly makes his cottages town cottages, and provides allotment gardens elsewhere. One of the chief attractions of a town is that it is a town, and to try to make it into country by providing each cottage with a poky piece of garden where a few wan flowers struggle for existence is ridiculous. Certainly let us have trees in the streets, but collect all the little patches into decent squares maintained by the town instead of multiplying dreary strips, the cultivation of which is left to the caprice of the tenant.

The report is divided under twenty-six heads, is clearly expressed, and shows that the subject has been thoroughly and thoughtfully considered. There are careful maps, plans, and sketches. The proofs might have been more carefully corrected, as there are several misprints. Some of the illustrations have no title, and they seem to have been dropped into the book rather promiscuously: the text refers to an illustration in the following or preceding page, and it is a little confusing to find either no illustration at all or one of some entirely different subject. ERNEST NEWTON.

PROBLEMS OF A SCOTTISH TOWN.

Problems of a Scottish Town. J. H. Whitehouse.

MR. WHITEHOUSE, who until lately was the Secretary of the Carnegie Dunfermline Trust, describes very frankly the present condition of Dunfermline and its inhabitants for whose benefit Mr. Carnegie has set aside a sum of half a million, together with Pittencrieff Park and Glen, in the hands of trustees—the interest of this sum, amounting to £25,000 a year, to be applied for the betterment of the town and the community generally. The picture drawn by Mr. Whitehouse is not an alluring one: drunkenness, overcrowding,

dirt and squalor, and a river which he describes as "a sluggish mass of ink, stink, and malaria."

One reads between the lines that the constitution of the trust is not an ideal one. The trustees are for the most part the same men as the members of the Town Council, who would appear to show no particular activity outside routine matters; they are appointed for life, and hold their meetings in private.

Mr. Whitehouse's suggested reforms can in no sense be described as revolutionary, and are not more than any self-respecting town might easily undertake without extraneous aid.

The first suggestion is the formation of a "Civic Union" which, amongst other duties, is—quite in a friendly way of course—to keep the trustees up to the mark. Boys' clubs and camps, social settlements, well-appointed libraries, reading-rooms and museums, and a sensible system of education which should stimulate interest in the history of Dunfermline and in its ancient buildings—such briefly are the outlines of a very modest programme. The Trust is also advised to buy land and build cottages as a means of relieving the present congestion.

The laying out of Pittencrieff Park and Glen is only lightly touched upon, as this has already been very elaborately and ably reported on by Professor Geddes; but, as showing the attitude of the official mind, the following paragraphs may be quoted:—

"There is a tendency, which I cannot regard as other than lamentable on the part of those responsible for the care of the Park, to urge that little need be done to it beyond the provision of paths, with railings and notice boards to prevent the public leaving them." And again, "In the summer of 1904 a crowd of happy children were to be seen each day wading and playing about a circular pond in the north-west corner of Pittencrieff Park. The pond was twelve inches deep, fed by fresh running water, and there was no happier sight in the park than this of child joy. The privilege was suddenly withdrawn, the reason given being that the children made a mess, and that their mothers would be grateful that they were prevented from getting wet!" This sort of attitude is not encouraging, and it looks as if there might be ample scope for an active Civic Union if an adequate use is to be made of Mr. Carnegie's gift.

Mr. Whitehouse has evidently studied his subject with great care, and has given much thought to the solution of the many problems; his suggestions are so simple that they should rouse no opposition, and there is no doubt they would make an excellent beginning if carried out loyally and with enthusiasm. One feels though that something a little bigger, a little more imaginative, is called for, if the best is to be made of a unique opportunity.

The book contains a few illustrations of Dunfermline as it is, but in order to follow clearly the suggestions for building developments, a map would have been a valuable addition.

The task set by Mr. Carnegie to his trustees is undoubtedly a difficult one, and the experiment will be watched with interest by many to whom Mr. White-

house's book will give a clear idea of the various problems to be solved before even a beginning can be made.

ERNEST NEWTON.

PERSPECTIVE TABLES.

Perspective Tables for Practical Architectural Draughtsmen, with chapters on the principles of linear perspective, the centrolinead, and practical hints. By Robert F. Sherar. 3s. 6d. nett. Edinburgh: A. W. Sinclair, 79, Princes Street. 1905.

So much has been written about architectural perspective that one would have imagined that there was little more to add; yet the 'Tables' compiled by Mr. Sherar are both valuable and new, at any rate in their application. To describe them fully would scarcely be fair to either author or publisher of the little book which is now before us, but it may be said that they have been compiled with the intention of assisting a draughtsman to determine the inclination of radiating lines, and so facilitate the setting up of the centrolinead, when either the point of sight or one or both of the vanishing points are located beyond the limits of his drawing-board. In order to determine the degree of radiation of lines on plan to a point of sight whose distance in front of the picture plane has been pre-determined, a simple principle of graphic proportion has been adopted, and reduced to tabular form. Its application is simplicity itself. By its aid a few radial lines can be determined, and to these the centrolinead can be set, as all perspective draughtsmen know.

To obtain the location of a vanishing point which lies outside the drawing-board, and then to determine a few radial lines to it, is theoretically more difficult; but although two operations have to be performed, Mr. Sherar has removed all difficulty from the problem. In order to locate the v.p., he has cleverly adapted the trigonometrician's Table of Natural Cosines to practical perspective work, reducing its employment to a simple reference and a simple multiplication sum—without saying that he is using trigonometry. If the draughtsman will only accept the Table as being correct, and be content to work to no finer angles than half degrees, he need trouble his head no further. It is not often necessary to set out an angle, in practical perspective work, to minutes of arc; but if it be necessary to do so, then Chambers' Tables must be consulted instead of those given by Mr. Sherar.

Once the vanishing-point has been located in this way, the determination of radial lines towards it proceeds by simple graphic proportion as before.

Young draughtsmen often stumble over setting up the theodolite, and many of those who possess great experience rely entirely upon the unscientific "trial and error" method, so that the description of the correct method as given by Mr. Sherar, rapid and accurate, should be valuable.

The rest of the book is taken up by the enunciation of well-known elementary principles and a few useful practical hints, but this may to a large extent be considered as mere "padding," introduced in order to make the volume large enough in bulk to put upon the market. Its real value lies in the Tables and their application.

G. A. T. MIDDLETON.

THE ARCHITECTURAL
REVIEW, NOVEMBER,
1905, VOLUME XVIII.
NO. 108.

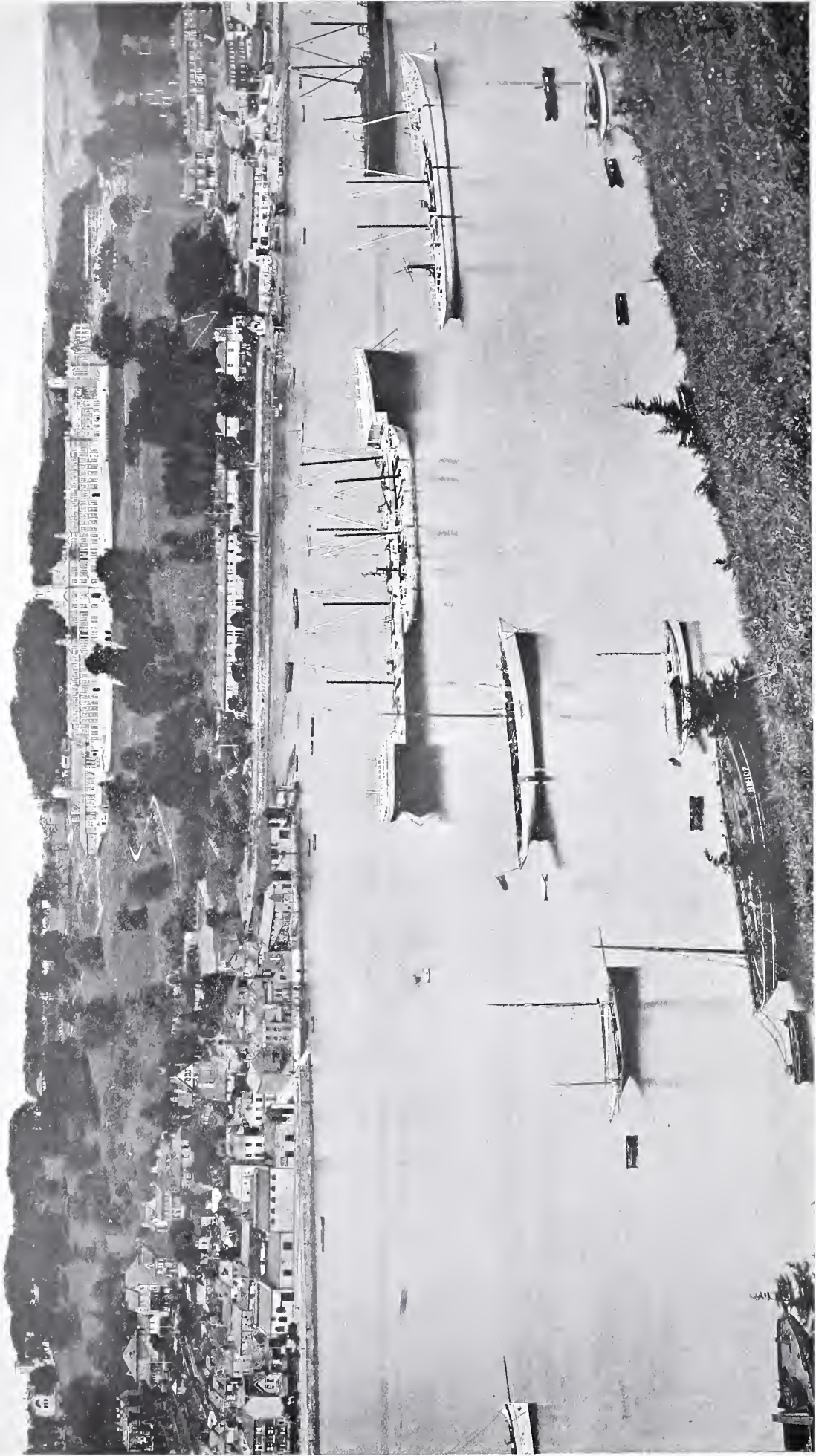


Photo: E. Dockree.

THE BRITANNIA ROYAL NAVAL COLLEGE, DARTMOUTH.
GENERAL VIEW OF THE SITE AND COLLEGE FROM KINGSWEAR.
SIR ASTON WEBB, R.A., ARCHITECT.

The Britannia Royal Naval College, Dartmouth.

THE Britannia Royal Naval College at Dartmouth has been built to take the place of the old training ship for naval cadets, the *Britannia*, at Dartmouth. The site, a very beautiful one, is immediately above the spot where the *Britannia* is moored, and is 180 ft. above sea level, with beautiful views down the Dart to the mouth of the river. The site slopes rapidly to the south, and is approached by two quadrant roads leading to a terrace 30 ft. wide, running the whole length of the building, and enclosing a sunk garden of formal design. The college was originally designed to accommodate 260 cadets, but is now being enlarged to accommodate 390, being divided into six terms of 65 cadets each.

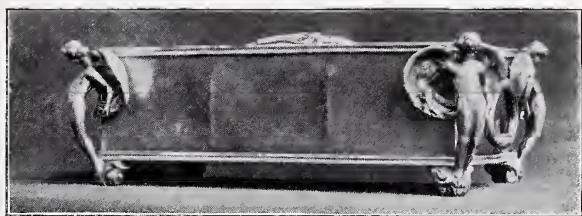
The main building consists of five blocks connected on the ground and first floors, the general disposition being shown on the plan. The centre block contains the school hall with class rooms, lecture theatre, and lavatories round three sides on two floors, the central entrance and administrative offices occupying the fourth side towards the front.

On either side of this central block are two blocks containing four day-rooms on the ground

floor, with eight dormitories for the four terms on two floors over, with annexes on the north side containing changing rooms, bath-rooms, lavatories and latrines on each floor. The extreme block on the west side contains the cadets' dining-hall, kitchens and offices; also the officers' ward-room and mess, with its kitchens and offices, rooms for the ships' company, kitchens, etc., and dormitories for

cadets, domestics, etc. The extreme block on the east side consists of the Captain's house and the chapel. To the north of this is a block now being added, consisting of four dormitories and two day-rooms, with sanitary annexe, for two additional terms, and a little to the east of this the head-master's house.

In addition to the college there are the sick quarters with sixty-four beds for forty infectious



CASKET FOR TROWEL USED BY H.M. THE KING
TO LAY THE FOUNDATION STONE.

and twenty-four non-infectious cases, the position of which is shown on the general plan. They are provided in three isolated blocks of two floors each, with an administrative and day-room block at one end and nurses' quarters at the other, and also a doctor's house, operating-rooms, dispensary, etc.

The general design of the buildings is shown in the accompanying photographs. They are constructed externally of Portland stone dressings and Messrs. Lawrence's Bracknell bricks for the facings, the roofs being covered with Cornish Delabole slates. The terrace walls are built of Torquay limestone with Cornish granite parapets.

Internally Bath stone is largely used, and Bracknell bricks again in the chapel. The corridors are lined with glazed bricks. The roofs of the chapel and school hall are sequoia, as also are the chapel fittings. The panelling of the dining hall is oak. The floors are iron and concrete throughout covered with teak and pitch-pine blocks. The staircases are concrete covered with wood, and all dormitories have two exits.

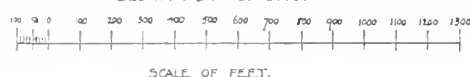
The chapel has the walls lined with marble for a height of 12 ft., composed of Brescia slabs opened out. This, the reredos, and the ambones in Devonshire marble, together with the stained-glass windows by Mr. Kempe, are the gifts of past cadets. The floor of the chancel is also laid with marble.



TROWEL USED BY H.M. THE KING
TO LAY THE FOUNDATION STONE
OF THE BRITANNIA ROYAL
NAVAL COLLEGE. EXECUTED BY
THE BROMSGROVE GUILD.

BRITANNIA ROYAL NAVAL COLLEGE, DARTMOUTH.

BLOCK PLAN OF SITE.



The college is supplied with fresh water from a spring at the landing stage. The water is raised by pumps to a reservoir 100 ft. above the college, from which it gravitates to a cistern in the central tower, and is from thence distributed over the buildings.

Salt water is pumped up from the river to a reservoir which forms an open swimming bath above the college, and from thence supplies the large plunge baths and the hydrants.

The heating is by steam converted to hot water in parts of the building, the boilers being placed in the power station at Sandquay Quarry, as shown on site plan, where the pumps are also situated, thus avoiding the cartage of coal up the hill and removal of ashes.

Colonel E. Raban, C.B., has been Director of Works at the Admiralty; the buildings have been designed and superintended by Sir Aston

Webb, R.A., Mr. S. E. Wallis and Mr. C. H. Hill being the clerks of works, while the contractors for the whole of the works were Messrs. Higgs & Hill, of Crown Works, South Lambeth Road, S.W.

The following are some of the principal sub-contractors:—

- Robert Adams, London, W.C., Casement Fasteners, etc.
- R. Anderson & Co., London, E.C., Lightning Conductors.
- Bath Stone Firms, Bath, Monk's Park Stone for Interior Work.
- E. and C. Braby, London, S.E., Cornish Delabole Slating.
- Bromsgrove Guild, Bromsgrove, Decorative Plaster-work, Electroliers, Door Knocker, etc.
- Burke & Co., London, W., Mosaic Paving.
- Clement, Jeakes & Co., London, W.C., Steam Heating.
- John Daymond & Son, London, S.E., Reredos in Chapel.
- Dent & Hellyer, London, W.C., Plumbing and Sanitary Fittings.
- Farnley Iron Co., Limited, Leeds, Glazed Bricks.
- Gillet & Johnston, Croydon, Clock and Bells.
- Hobbs, Hart & Co., London, N., Locks.
- H. T. Jenkins & Son, Torquay, Marble-work in Chapel.



DETAIL OF THE CENTRE OR SCHOOL BLOCK.

Photo : E. Dockree.

George Johnson, London, S.W., Lifts.

Thomas Lawrence & Sons, Bracknell, Facing Bricks.

Walter Macfarlane & Co., Glasgow, Rain-water Heads.

New Expanded Metal Co., London, S.W., Expanded Metal
for Ceilings, Floors, etc.

Pilkington & Co., London, E.C., Asphalt Dampcourses,
Waterproof Linings, etc.

Potter & Co., Limited, London, S.W., Clips for Fastening
Expanded Metal.

Ripolin, Limited, London, W.C., Ripolin Paints.

St. Pancras Ironwork Co., Limited, London, N.W., Iron
Staircase.

James Shoolbred & Co., London, W.C., General Furnishing.

Smith & Turner, London, E.C., Door Springs.

Strode & Co., London, N.W., Electric Lighting, Electric
Bells, and Telephones.

J. Warner & Sons, London, E.C., Bells.

George Wragge, Limited, Salford, Metal Casements.

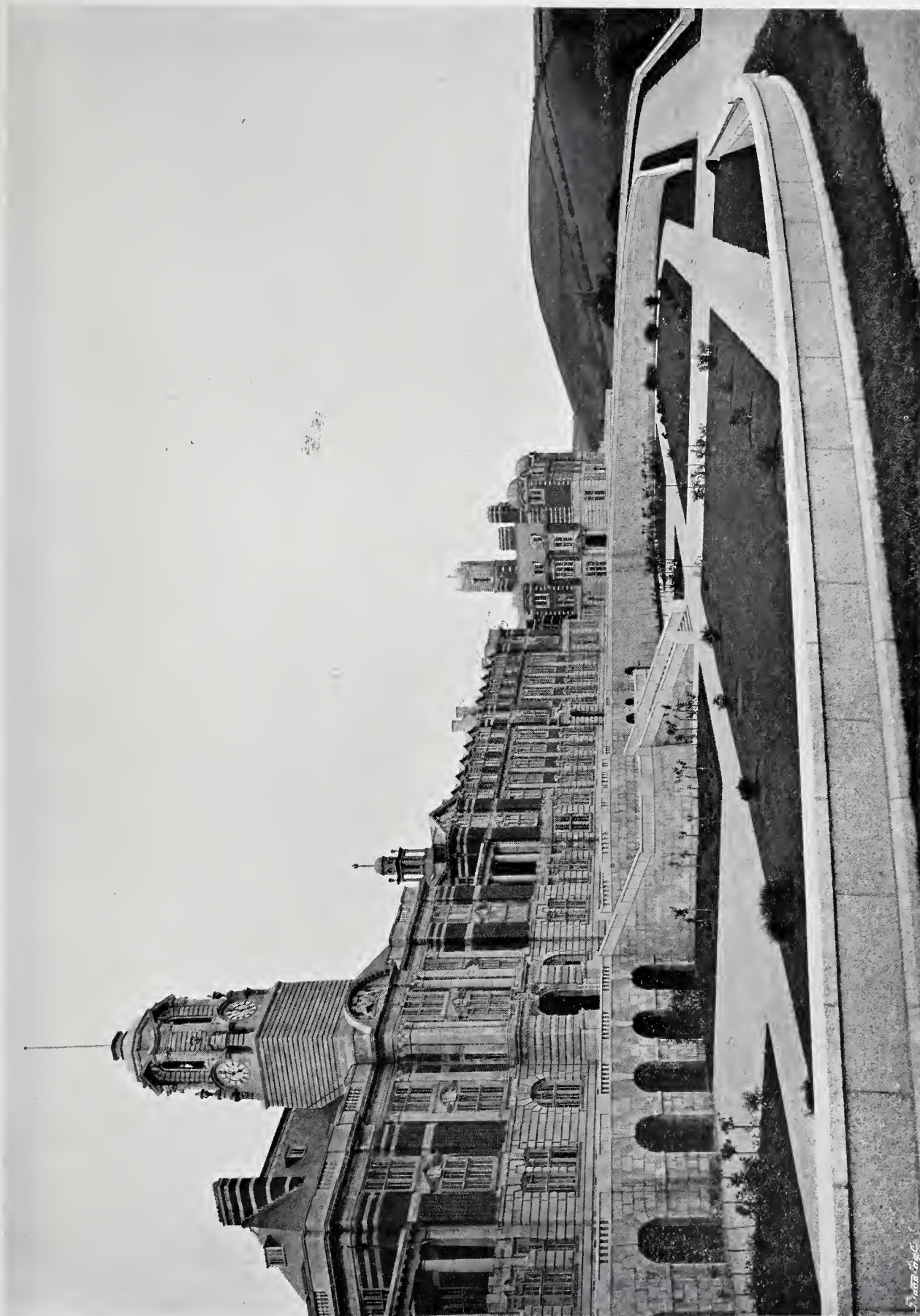


Photo: E. Ducktree

GENERAL VIEW, SHOWING TERRACE AND SUNK GARDEN.

*Photo : E. Dockree.*

THE CENTRE OR SCHOOL BLOCK.



—H. B. E. G. L.

Photo: E. Dockree.

THE SCHOOL HALL. FROM THE GALLERY.

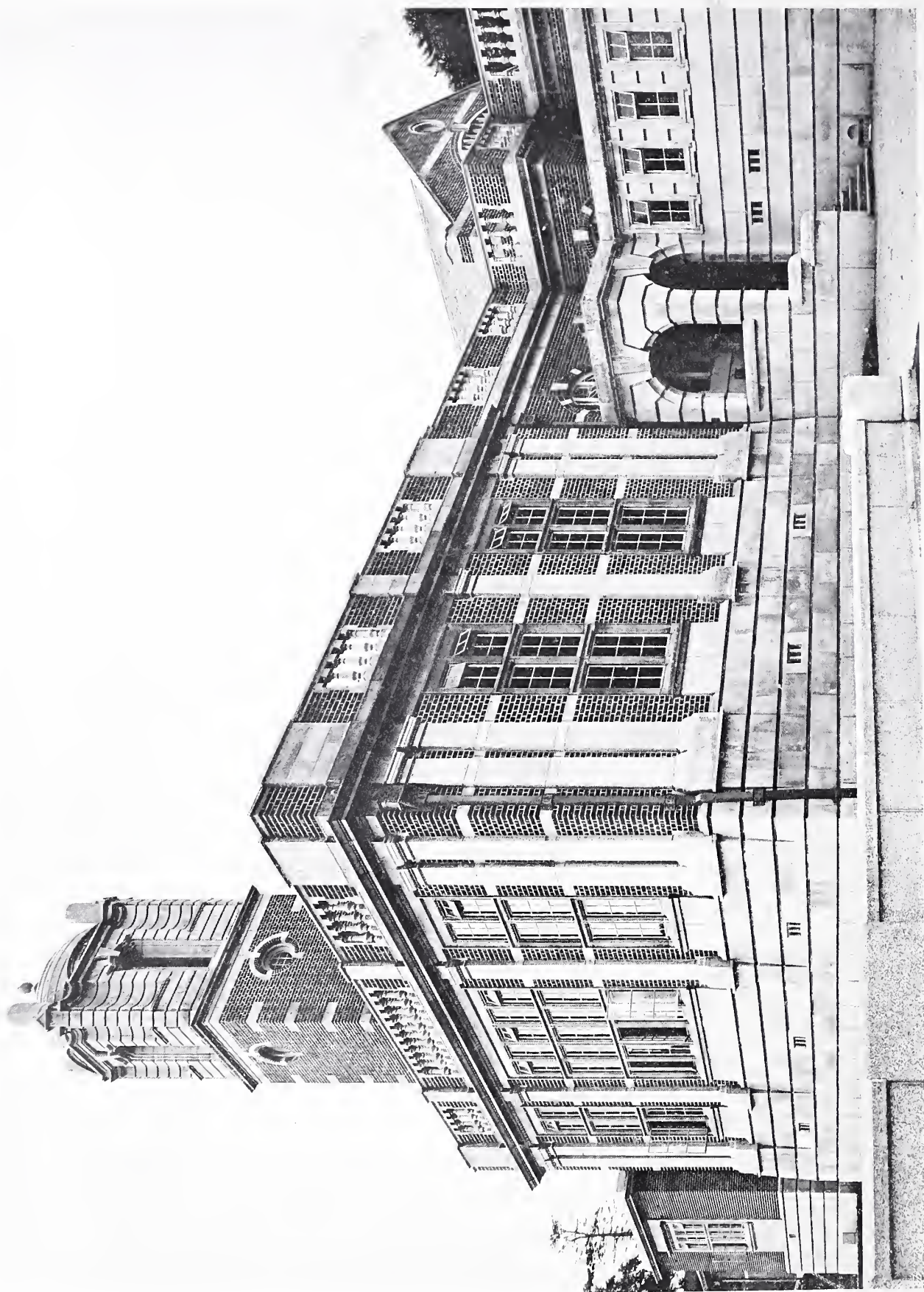


Photo: E. Duckree.

THE WARD ROOM AND OFFICERS' ENTRANCE.



Photo : E. Dockree.

A DORMITORY AND DAY ROOM BLOCK.

*Photo : E. Doctree.***THE DINING HALL.**

Note.—The chairs and tables are not those that will eventually be used

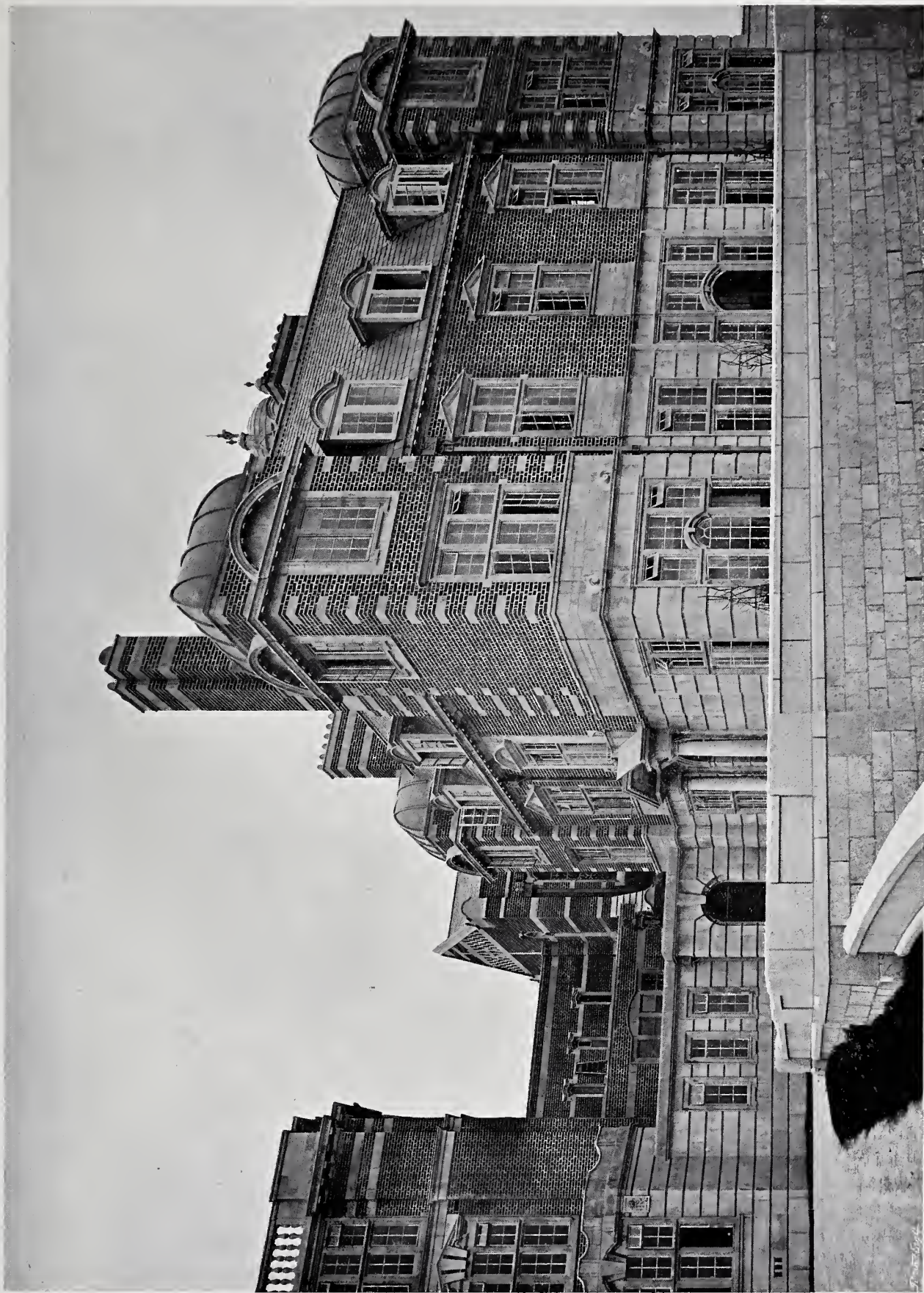


Photo : E. Dockree.

THE CAPTAIN'S HOUSE.

*Photo: E. Dockree.*

THE MAIN CORRIDOR.



Photo : E. Dockree.



Photo: E. Dockree.

ENTRANCE TO THE CAPTAIN'S HOUSE.



Photo : E. Dockree.



Photo: E. Dockree.

INTERIOR OF THE CHAPEL, LOOKING WEST.



Photo: E. Dockree.

THE CHAPEL: ORGAN CHAMBER IN CHANCEL, LOOKING NORTH-EAST.



Photo: E. Dockree.

DETAIL: A CADETS' ENTRANCE.



Photo: E. Dockree.

THE SICK QUARTERS, SHOWING BALCONIES AT END OF
WARDS AND SANITARY ANNEXES.



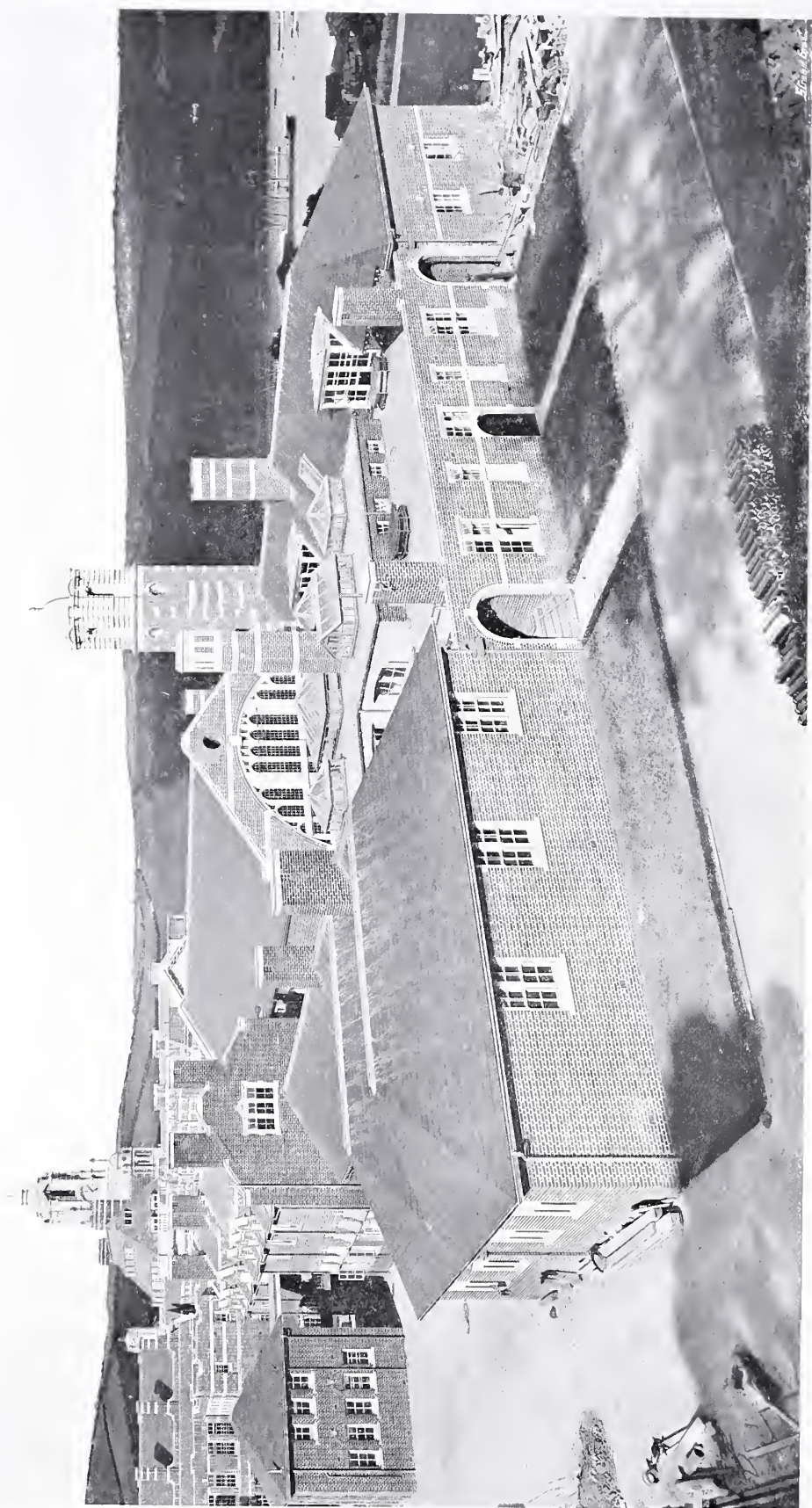
THE SICK QUARTERS, GENERAL VIEW OF THE THREE BLOCKS.

Photo: E. Dechree.



ENTRANCE TO THE SICK QUARTERS AND DOCTOR'S HOUSE.

Photo: E. Dockree.



THE KITCHEN BLOCK.

Photo: E. Dugdale.

Notes.

Irish Ecclesiastical Architecture—The Cost of Restoring York Minster— Street Decoration in Dublin.

OWING to unusual pressure on our space it is necessary to hold over the completion of Article IV. of the series on "Irish Ecclesiastical Architecture." The first part of the article (in the October number) had to be printed without the author's corrections, and there are consequently some mistakes which should be noted:—

| | |
|---------------------------|--|
| Page 187, col. 1, line 18 | for Tusk read Lusk. |
| " 187 " 2 " 11, 25 | } for Petric read Petrie. |
| " 189 " 2 " 12 | |
| " 188 " 2 " 13, 14 | for (though these are so few, they tend to the safety of a party attacked) read (though that these are so few tends to the safety of a party attacking). |
| " 188 " 2 " 31 | for it read its (in quotation). |
| " 188 " 2 " 32 | for Caeincachair read Caeineachair. |
| " 189 " 1 " 35 | for Rec read Ree. |
| " 189 " 2 " 5 | for 1835 read 1135. |
| " 190 " 2 " 29 | for exat read erat. |
| " 191 " 1 " 4 | for Roberts read Robert. |

* * * * *

CORRECTIONS.—In Mr. Middleton's review of Mr. R. F. Sherar's book on perspective, published in the October issue of the REVIEW, a "theodolite" was inadvertently referred to instead of a "centrolinead." The fourth paragraph of the review should therefore be read with this amendment.

In the September issue illustrations were given of a new Kensington church by Mr. G. F. Bodley, R.A., which was named in the REVIEW as All Saints' Church—this being the name given on the note sent by the architect to accompany the illustrations. The name of the church should, however, be Holy Trinity.

* * * * *

THE COST OF RESTORING YORK MINSTER.—The "Occasional Papers" which the Dean of York has issued during the past five or six years describing the progress of the work of repair and restoration at the Minster have now been collected together and issued in volume form. It appears that between 1829 and 1899 the sum of £110,424 was spent on restoration and rebuilding work. In October, 1898, Mr. Bodley reported that another £50,000 would be needed to carry out the essential restoration, and that this would occupy fourteen or fifteen years. The work was undertaken, and has been carried on for five or six years on the lines recommended by Mr. Bodley, though much yet remains to be done. The total amount

subscribed towards the restoration fund up to June 17 last was £22,857, and there had been expended £16,238, leaving a balance in hand of £6,619.

* * * * *

LAST month Mr. Lawrence Weaver drew attention to the use which has been made of the derelict gas-lamp standards in Dublin, no longer required owing to the installation of electric light. Mr. Weaver assigned the credit for this to the City Corporation; but the improvement appears to be due, as might be expected, to private effort—the flower-holders having been erected by the New Society in Kildare Street. The baskets are made of cast iron and burnished copper, and are supported upon the pedestals of the now disused gas lamps. Growing flowers with green trailing plants fill the baskets and make a gay show, and a constant supply of blooms, varying according to season, has been arranged for. The effect of the brilliant colours seen against the dark background of the rather sombre street is most striking, and it is believed that the New Society, encouraged by the success of this first experiment, will shortly extend its scheme of decoration to several other Dublin streets.



Mason.

A FLOWER STAND IN KILDARE STREET, DUBLIN.

The London Traffic Commission Report.

II.

It was with peculiar interest that architects awaited the Report of the Royal Commission on London Traffic; for the question of locomotion in cities is indissolubly connected with that of their laying-out and improvement, subjects to which the greatest artists of all times have continually applied their genius. Greece and Rome—following the dim dynasties of Egypt and Assyria—the Middle Ages, and the Renaissance in nearer times, have furnished us with stupendous examples of that great art which most fitly, and therefore necessarily with most beauty, meets the requirements of its age. For—and this essential truth should be insisted on, urged wherever two or three Philistines are gathered together on Royal Commissions or what not, and driven into their reluctant minds—art is a living force, informing our common life physically, as religion, when true, informs it spiritually. You shall no more attain to the kingdom of Beauty by the mere setting within and about your dwellings of pictures in frames and statuary upon pedestals, than you shall gain that of Heaven by the making of long prayers and the broadening of phylacteries.

Deducing, probably from the maxim of two heads being better than one, that any greater number of heads improves in an ascending ratio, it is the custom of Parliament to refer certain pressing perplexities to some group of persons (not necessarily chosen from among its members) with definite instructions as to the subjects they are to examine and report upon. The relief from tooth-ache experienced by the sufferer who approaches his dentist's door-knocker is proverbial, and a Royal Commission, it would appear, has the analogous effect of allaying public irritation and effecting a kind of false cure, insomuch that further action seldom ensues. The evidence collected remains, however, for the benefit of future investigators, and in this is to be found the real resultant value of a somewhat costly procedure.

In the case of the present Commission this solid residuum of evidence is not yet available, but is promised in the seven volumes to follow that now issued. The first volume contains the Report only, which may be compared to a decanted tincture from the facts deposited with the Commission; and, with all respect to that distinguished body, a remarkably colourless liquid it is.

The Commission was originally composed of thirteen members (including the secretary), three being financial experts; three, railway magnates; one, a representative of the Home Office; one, an engineer; two, lawyers; together with a yeomanry D.S.O., a former official of the Science branch at South Kensington, and an ex-Master of the Buckhounds. The instructions issued to them under the Royal Sign Manual are as follows:—

“To inquire into the means of locomotion and transport in London, and to report—

“(a) As to the measures which the Commission deem most effectual for the improvement of the same by the development and interconnection of Railways and Tramways on, or below, the surface; by increasing the facilities for other forms of mechanical locomotion; by better provision for the organisation and regulation of vehicular and pedestrian traffic, or otherwise.

“(b) As to the desirability of establishing some authority or tribunal to which all schemes of Railway or Tramway construction of a local character should be referred, and the powers which it would be advisable to confer on such a body.”

It will be seen that, from the first, the views of the Government, as indicated both by the composition of the Commission and by the instructions, were curiously narrow. Railways and Tramways with their consequent finance seem to have obsessed their minds to the exclusion of anything beyond the mere regulation and organisation of other means of locomotion; and the terms of the reference would seem almost to prohibit the consideration of the underlying and causative problem, which is the planning of London as a whole. The Report, it is true, touches on this question by way of the sub-report of the Advisory Board of Engineers; but as the instructions to that body are not yet before us, we can form no opinion as to how far it was deemed to fall within the lines of the Royal instructions.

As, however, the planning of buildings and streets is matter for the expert opinion of architects, and no reference was made to representatives of that profession, we may fairly assume that the idea of the main problem being one which a skilled and artistic plan-wright alone could deal with did not occur to His Majesty's advisers.

Yet it is clear that this question of city improvement, which is at the root of all traffic difficulties, is essentially an artistic one—a matter of creative design. Railways and tramways, necessary as they may be, form but a secondary factor of the problem, which is that of the *réseau* or arterial network of thoroughfares. All must acknowledge with fascinated admiration the amazing constructive achievements of our engineers; but they are, by their very training, unfitted for the patient unravelling of the knot into which a city's highways and byways have been tangled by succeeding generations. Their cut-and-thrust methods are magnificent as applied to direct construction, but a different order of mind is needed in the master of planning. Such crude solutions as the thrusting of the unfortunate traveller underground, into "shallow" and "tube" railways, while goods vans and drays continue to enjoy the sunlight and open air secured by heavy expenditure on parks and open spaces, can never be accepted as either satisfactory or final. Such inartistic bludgeon-work as the proposal for a subway from Grosvenor Place to the Marble Arch, running for three-quarters of a mile beneath Hyde Park, needs but mention, one would think, to ensure indignant condemnation.

The plan then—and by "plan" is intended the considered, orderly marshalling of parts to form a homogeneous design—is the essential prerequisite in dealing with locomotion among buildings. Such a plan is in no way to be compared with the casual stringing together of items beloved of the amateur vaguely conscious of many wants. Few, even among trained artists, have the gift of such great conceptions; all worthy of the name realise their beauty when produced.

No artist has been consulted. The banal result of Committee compromise represents all the grain extracted from so prodigious a winnowing of evidence by many Select Committees of the House¹ and Royal Commissions.² In the case of the present Commission, indeed, it would seem to have been so smothered by the statistics heaped upon it as to have turned to the outlet offered by the "Traffic Board" hinted at in their instructions, as a welcome means of removing responsibility to other shoulders.

"Un plan de ville," says Camille Sitte in his work, "*L'art de Bâtir les Villes*," "est aussi une œuvre d'art et non un simple acte de voirie. C'est là le nœud de toute la question." A work of art it is; and no such work, be it cathedral-plan, fresco, or symphony, can ever be produced by a Committee.

Criticism, it may be remarked, is easy. What is the constructive suggestion?

"There is no finality in the question of the best means of locomotion and transport for great cities," remark, truly enough, the Commissioners. For this very reason, that future requirements cannot be foretold, the greatest care should be exercised in disturbing the *réseau* which has automatically developed from the needs of succeeding generations. The violent cleaving of colossal avenues from north to south and east to west is no specific remedy; rather may they make for a vaster congestion at their crossings and delivery points. A road wider than necessary for its definite lines of traffic is merely wasteful, and increased width does not even imply greater dignity or beauty. Judicious and cautious widenings where pressure indicates them, and, above all, the scientific consideration of junctions, are the true means for unravelling the tangle of traffic and setting each line upon its ordered path.

In a recent paper on the subject, which, by the invitation of the Royal Institute of British Architects, the present author had the honour of reading before them, an endeavour was made, by reference to the teaching of the past and by diagrams of traffic routes, to illustrate some of the simple remedies obtainable by artistic planning.

The choice of the artist is the important point. It is a delicate matter to mention names, but in Viscount Esher and Lord Windsor the Government is so fortunate as to possess men in close touch and sympathy with art and its practitioners; and it should not be difficult to select, with their advice, the man whose temperament and genius best fit him for the task of dealing with this insistent question.

There is no need for grandiose schemes. Take a single problem from the tissue of urgent needs—the improvement of communication between two given points, with relation to cross traffic and connecting routes; the reduction to ordered disposition of the chaotic jumble which has congested locomotion in Piccadilly Circus—or what not; entrust the solution to an individual designer. The execution of the idea evolved may well be entrusted to the Administration, Traffic Board, what you will, which shall possess the necessary authority for the contingent financial and other matters, and be in a position to regard it in relation to similar schemes for other localities.

But, avoid Committees, Boards, and Officials of all kinds where inventive creation is required, in proportion as you value your money and desire an effective result.

JOHN W. SIMPSON.

¹ Select Committees on Metropolis Improvements, 1836, 1838, 1839, 1840, 1841.

² Royal Commissions, 1842, 1905.



FIG. 1.—ST. FAGAN'S. DETAIL.



FIG. 2.—ST. FAGAN'S. DETAIL.



FIG. 3.—ST. FAGAN'S, CARDIFF.

English Lead Cisterns.

RAINWATER cisterns have so obvious a connection with pipe-heads that I take them next in my present series of articles on English leadwork. They are, I think, rather less interesting than heads. The limitations enforced by their uses give them less decorative possibilities, and, because they have lost their main original uses, the study of their treatment is not so valuable as an inspiration for present work. Yet they have an educative value considerable enough, if lead got all its deserts. The use of ornamented lead sheeting on the fronts of projecting bays and in like situations is happily growing, and such leadwork presents the same decorative problems as the front of a large cistern. In cisterns the limitations of form are considerable. They can only take simple shapes. They may be rectangular, polygonal, circular, or segmental on plan, but variety ends there. For practical reasons their sides vertically should be straight and their top edges strictly horizontal and unrelieved by parapets or any like finishes, such as give an unending variety to rainwater heads. Decoratively the aim is suitably to ornament a flat surface of regular outline, and, speaking broadly, there are three main ways of doing this.

1. To treat the surface with some unobtrusive recurring ornament in the same way that a mediæval mason diapered a wall, a method almost entirely neglected.

2. To panel the face by applying moulded ribs, and further to diversify the surface by spotting it with small ornaments such as dates, small figures and heraldic charges, and

3. To model a considerable part of the surface in low relief so as to produce a certain unity of effect not obtained by simple panel treatment. This method obtains only in rich and rococo work.

Most cisterns fall under the second heading. To deal with them in order, apologies are perhaps needful for the somewhat gruesome character of the example given in Fig. 4. Moreover, it is a reliquary and not a cistern. Decoratively, however, the two things are the same, they are both big lead boxes. The example is from St. Eanswith's, Folkestone; the bones are probably those of the saint. I put aside, however, as not germane to my subject, the ecclesiastical significance of this lead box and its contents. Decoratively the idea is excellent. The surface is covered with a network of dots, one lozenge of which has been emphasised by the engraver for the sake of clearness. Each dot is lozenge-shaped, and near the



FIG. 4.—ST. EANSWITH'S.

top of the box the lozenge pattern is crossed by a horizontal line of the same dots. Whether this reticulation is intended actually to suggest a net, or is merely a pleasant combination of dots and lines, seems not to be material. I illustrate it mainly as showing a type of decoration which might well be adopted for relieving flat surfaces in modern leadwork. The box has a rough cover (not fitted to it) which apparently was originally part of a Roman coffin. It has at one end, on the underside, five parallel cable mouldings. The reliquary itself seems to be (for historical reasons too long to be set forth here) of the twelfth century.

The two small lead ossuaries from the British Museum, which are Romano-British, and were found in Warwick Square, E.C., I also illustrate because they have a distinct place in the development of leadwork design. The crossed rods of bead and reel (Fig. 5) are the ancestors of the more sophisticated framing of a seventeenth-century cistern. Sol in his quadriga clears the way with his team for the lively frieze of the tank of Fig. 9. The ossuaries are technically admirable. The joints are burnt, not soldered, and the bead and reel rods, cast hollow to save metal, effectually brace the vessel.

In Fig. 6 is illustrated the exquisite lead cistern which the British Museum possesses. The nature of the ornament dates it as being of



FIG. 5.—OSSUARIES, BRITISH MUSEUM.

the late fifteenth century, but it seems obvious that the disfiguring inlet and outlet pipes are the addition of the Philistine. The conical top also seems to be no part of the original. The second and fourth bands of ornament are particularly interesting owing to their similarity in character to the frieze of the Bovey Tracy tank, and the remaining three bands are of the same family as the frieze of the Lincoln Cathedral example. I mention these parallels as showing the continuity in the nature of leadwork design.



FIG. 6.—CISTERN, BRITISH MUSEUM.

St. Fagan's, Cardiff, is the home of one of the most notable, as it is one of the earliest, lead cisterns (Figs. 1 to 3). It is a delightful feature on its stepped stone base in the middle of a round garden, between the main entrance to the castle and the drive. Save for the battery of time it is quite circular, and about 6 ft. 6 in. across (not octangular and 10 ft. across, as stated by Mr. Lethaby). Speaking generally, the main impression it gives is of a curious likeness in general treatment to the arcaded Norman fonts of which there are six in Gloucestershire. The comparative nearness of these fonts makes it a not too flighty suggestion that they may have influenced the design. Thirty out of the thirty-two panels into which it is divided are cast from the same pattern, which is shown large in Fig. 2. The remaining two give respectively the Royal arms, with the date 1620, and the arms of Sir Edward Lewis of Van, St. Fagan's, Peamark Place, and Llantrithyd. This knight of many places bought the manor of St. Fagan's from Sir William Herbert in 1615-16. Our tank would therefore seem to be one of the things with which he beautified his new estate, unless indeed he brought it from

Van, a place near Caerphilly and some six miles from Cardiff. There remain at Van some Tudor work and a large round dovecote. The date does not necessarily deny this, as it may indicate the setting of the tank in its new place rather than its making. The nature of the ornament makes it likely that 1620 was the date of its production. As, however, the panel with the Lewis arms was obviously, from the seams on the inside, inserted after the main part of the cistern was made, a pleasant taste of doubt remains as to its origin. If it was a local production it is a feather (unhappy simile) in the cap of the Welsh plumber of the seventeenth century.

The cistern of Fig. 7, in the possession of Mr. Harry Hems, at Exeter (and there photographed by Mr. Galsworthy Davie), is a particularly good example of simple paneling. It is dated 1696, and is very similar to the still plainer cistern of 1666 at 10, Downing Street, which was illustrated in *THE ARCHITECTURAL REVIEW* of May 1904. The Downing Street example is very sparing in enrichment. It is divided by ribs into forty-four panels, and only five of them are filled, the



FIG. 7.—EXETER.

ornaments being the date, a crown, and C.R. The Exeter cistern possibly had all panels filled with devices, though two are bare, and the six ornaments repeating at the right and left of the front are especially interesting. Perhaps the second from the right-hand top corner is the happiest, the vine pattern being employed most successfully. The return ends are decorated with the same six ornaments. It will be noted that there are square outlines round these ornaments, which suggest that the ornaments were cast separately and applied. This is not so, however. The outline merely marks the edge of the loose pattern, where it was pressed into the flat bed of casting sand. A word as to the method of making this cistern,

which applies to most of this type. The front and sides were cast in one flat sheet, which was bent at the front angles, and also at the back, returning $3\frac{1}{2}$ in. The return pieces are soldered to a sheet-lead backing. Two stays of sheet lead 13 in. deep divide the inside into equal distances; they reach to within 6 in. of the top and stand clear of the bottom. In the middle, tying the front and back, is a circular solid bar of lead $1\frac{1}{2}$ in. in diameter. Other dimensions are:—Length, 6 ft.; height, 2 ft. 4 in.; width, 2 ft.; greatest thickness, $\frac{7}{8}$ in.

There is a vigour about the decoration of Devonshire and Somersetshire cisterns of the late seventeenth and early eighteenth centuries which



FIG. 8.—BOLTON HALI, YORKSHIRE.



FIG. 9.—POUNDISFORD PARK.



FIG. 10.—ST. MARY'S, SCILLY.

cannot be claimed for the London work of the same date. This Exeter example, the Poundisford Park tank (Fig. 9), a fine one at the Deanery, Exeter, dated 1708, and still another at Exeter, dated as late as 1724, all have a delightful variety of flower and animal ornaments which are freshly amusing. Probably they were made by the same plumber. Some of the ornaments which are seen in Fig. 7 are repeated on the 1724 cistern at Exeter. They obviously are cast from the same or duplicate patterns. There is a delightful disregard of scale. In a sporting scene the huntsman is but little larger than the dogs, and the stag has a quiescent air which does not quite match the violent activity of the three dogs (one high in the air) which are after him. But it makes a quite dramatic picture.

Bolton Hall, Yorkshire, has a fine series of lead cisterns, which are of the same period as the pipe-head which was illustrated in *THE ARCHITECTURAL REVIEW* of September. They stood originally at the foot of the stack pipes, and it will be noted that the cistern at the right of the group in Fig. 8 is angled on plan to suit the angle pipe-head already mentioned. The semi-circular plan of the larger ones is unusual, and a pleasant variant of the ordinary rectangular form. The simplicity of their treatment is in contrast to the rather crowded ornament of the pipe-heads. There is no attempt to panel the fronts with ribs. On the larger cisterns the classical leaf moulding which runs round the top and bottom divides the semicircular front vertically with a double band. For the rest they were content simply to apply the coat of arms of the Paulet and Scrope families, with their supporters.

On the small angle cistern the Scrope choughs support the Paulet shield, due probably to



FIG. 11.—NOTTINGHAM CASTLE.



FIG. 12.—CHARLTON HOUSE.

muddled re-fixing at some time after a number of the heraldic ornaments had dropped off, owing to bad work when the cisterns were first made. There are, I think, more applied ornaments missing from late seventeenth and eighteenth century leadwork than from that of the sixteenth and early seventeenth centuries. The later men were more intent on piling on enrichments than in seeing that those they applied were firmly fixed.

The cistern at Poundisford Park, Taunton (Fig. 9), I also show in sequence to my September article (page 100, Figs. 18 and 20). It is dated 1671. The arrangement of the pots of flowers in the panels is formal enough, but fancy has been given rein in the little frieze that surrounds the top. The scenes, as is befitting, have a garden atmosphere. One pleasant-faced urchin is apparently about to help himself from a fruit tree, while another is contemplating a rather weedy dog. Trees mingle with flowers, and altogether the composition is delightfully casual.

The initials W. H. are those of William Hill, the other H. being probably the wife's initial.

In the crest the rising dove, holding an oak sprig, stands on the usual twisted sausage, a rendering of the scarf of a helm, as ridiculous here as it is on the notepaper of the armorially-minded of to-day.

At St. Mary's, Scilly, one expects something rather unusual. I confess I had a vague hope of finding some graceful convention of daffodils on the leadwork that would accord with the sub-tropical atmosphere of the Isles. But London throws its influence afar. The cistern of Fig. 10 is not only of the ordinary London type, but even, which is unusual, bears the name of the maker, "Walker, London," a

name one seems to have heard before. It is a royal cistern, and bears the initials and crown of George I. or II. The cherubs are very fully bewinged, and the arms of the central panel are those of H.M. Ordnance Office, which controlled the castle at St. Mary's.

The round tank, dated 1681, at Nottingham Castle is an admirable example of the plainer sort (Fig. 11). The arms are those of Henry Cavendish, K.G., and the "serpent nowed" is the Cavendish crest. The outward slope of the sides, from the top downwards, adds decorative interest to the tank, but makes it less practical when it comes to cleansing it. After all, if one drinks water from a lead cistern, a few bacteria more or less are not of much account, and seventeenth-century courage was undisturbed by those pleasant creatures whose names make a point of ending in *coccus*.

I have endeavoured that my illustrations shall be as far as possible *ad hoc*, by omitting the surroundings of the leadwork; but the cistern from Charlton House, Kent (Fig. 12), would lose half its charm if divorced from its charming setting. It stands filled with water-lilies in the middle of a rose garden framed in trees. The octagonal tank (each face of which is about 2 feet long) is a particularly happy example of the panelled type, and originally was probably, as it is now, the base of a fountain. The upper part is an addition, and may or may not be genuinely old work. It was

but recently acquired, and whether old or merely "antique" (precious word), the swans and Cupid undeniably make with the tank a most agreeable composition.

Fig. 13 shows one of the best of the London cisterns. It is at Child's Bank, and dated 1685. The half panels return round the sides, and in this show a pleasant disregard of the prevailing practices. The ornaments are admirable. The stars are gay and curly, and there is an echo of history in the very small bust of King Charles I. between the 6 and the 8. The little figures are vigorous and interesting. I take those at the right and left of the lower tier to be King David harping on his harp. As to the remaining ornament, which occurs six times, I will not dogmatise. It suggests an exasperated prawn, or perhaps a freshwater relative inhabiting London cisterns, anyhow a watery creature.

The rich example of Lincoln's Inn (Fig. 14) calls for especial notice, and is the most notable example of my third division of this work, viz., the type which has the front partly modelled in low relief. The mask at the bottom and the trophy of fruits above the top line of ribbing are more ambitious than anything I know in London. The vertical strips of ornament at the ends, while good in themselves, seem rather a mistake. One feels that the cistern would have been better if it had stopped short of these strips and finished outside the very good framing of husks. While the

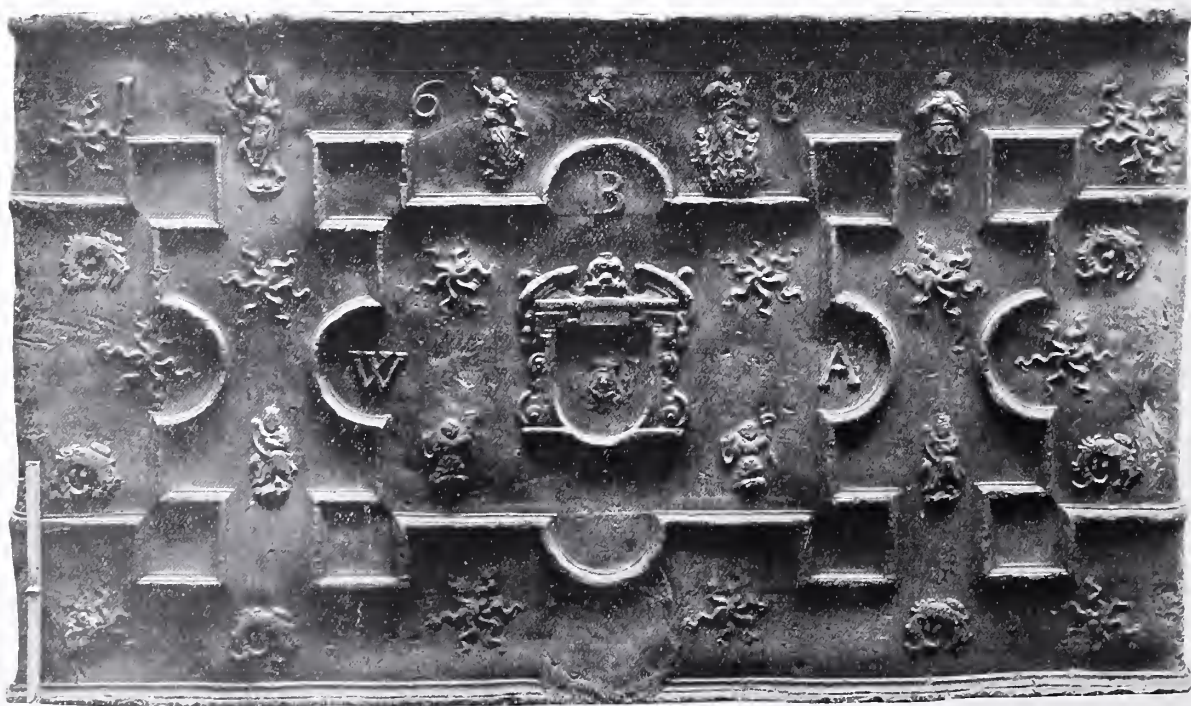


FIG. 13 —CHILD'S BANK, FLEET STREET.



FIG. 14.—LINCOLN'S INN.

proportion of the tank would not have been so good, decoratively there would have been a unity which now it rather misses.

There is another cistern in Lincoln's Inn which has the same general characteristics, but is much plainer. The same patterns were obviously employed.

At the Record Office, in Chancery Lane, near the doorway of the Rolls Chapel, are four eighteenth-century cisterns, one of which is shown in Fig. 15. This surely reaches the zenith of the Marine Store style of decoration. The plumber has made the front of his tank a museum of his patterns. He must have suffered from an acute



FIG. 15.—RECORD OFFICE.

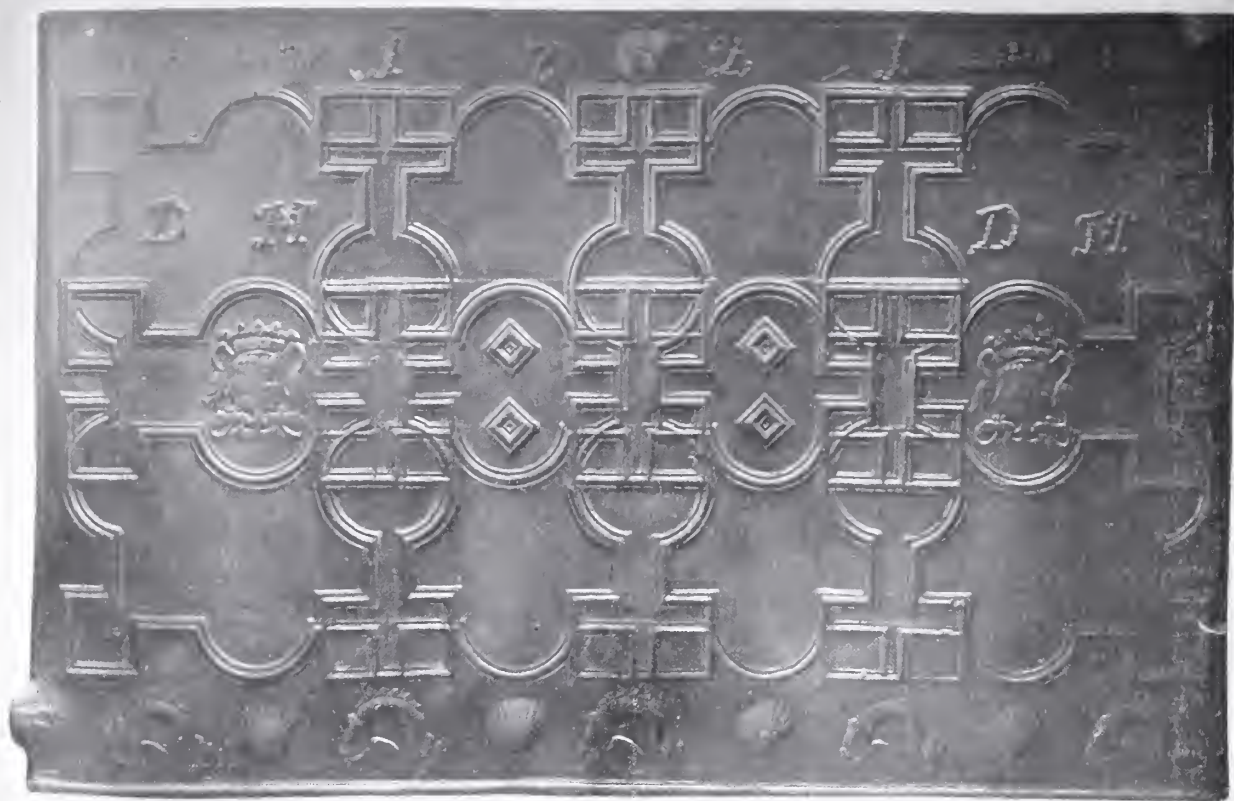


FIG. 16.—20. HANOVER SQUARE.

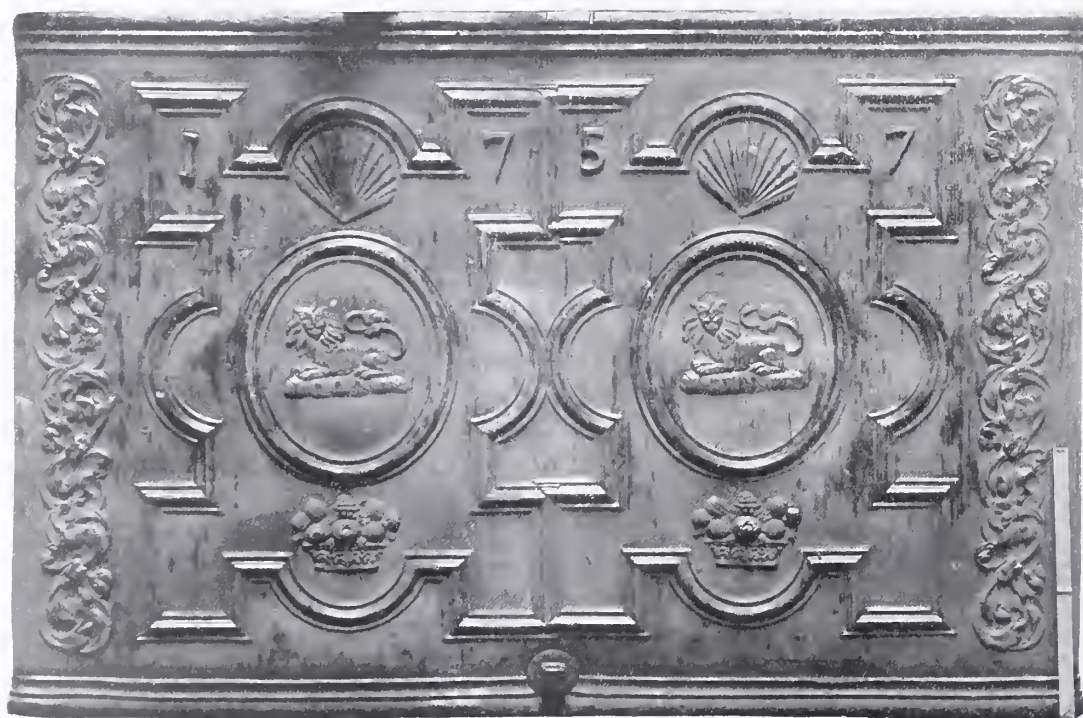


FIG. 17.—CHILD'S BANK, FLEET STREET.



FIG. 18.—QUEEN SQUARE, BLOOMSBURY.

horror of plain surfaces. It is an entertaining production, but one is grateful that it does not always happen.

At 20, Hanover Square, which houses those who are learned in everything from obstetrics to Irish folk songs, there is a tank in the area, visible from the doorway (Fig. 16). If my last example was a study in spotty ornament, this is a liberal education in the interlacing of ribs, almost Runic in complexity.

The tank of 1757 (Fig. 17) is another of the interesting series at Child's Bank, Fleet Street, and is a good example of the formalism of the later eighteenth-century work. The somewhat excessively-whiskered lions of the oval panels are amusing enough, and the strips of rather aimless ornament down the side lighten the general effect.

Mr. Max Clarke has at his house in Queen Square a good example (Fig. 18), which yet has some technical failings. The patterns seem to have been carelessly used, with the result that the alignment of the ribs is very irregular. The star ornaments are poor compared with those on the tank of Fig. 13, and the lettering is straggling and forlorn. The treatment of the coats of arms is rather more ambitious than successful.

Queen Square is not only full of lead cisterns, but the statue of Queen Charlotte (commonly known as the Queen Anne statue) is also of lead.

Near by, in Great Ormond Street, there is a cistern dated 1745, evidently made from the same patterns as the two best examples at Lincoln's Inn. The stone pedestal on which it stands is a modern addition, set up by Mr. Frederick Warre.

This tank was illustrated in the *Builders' Journal* of March 25, 1905.

Pump-heads are less common than cisterns, but they are not very interesting. I show one of normal type (Fig. 19) which is rather early in date (for a pump-head). Others bear the stock cistern enrichments, such as shells and stars.

In my next article I shall deal with the ecclesiastical form of tank, the font.

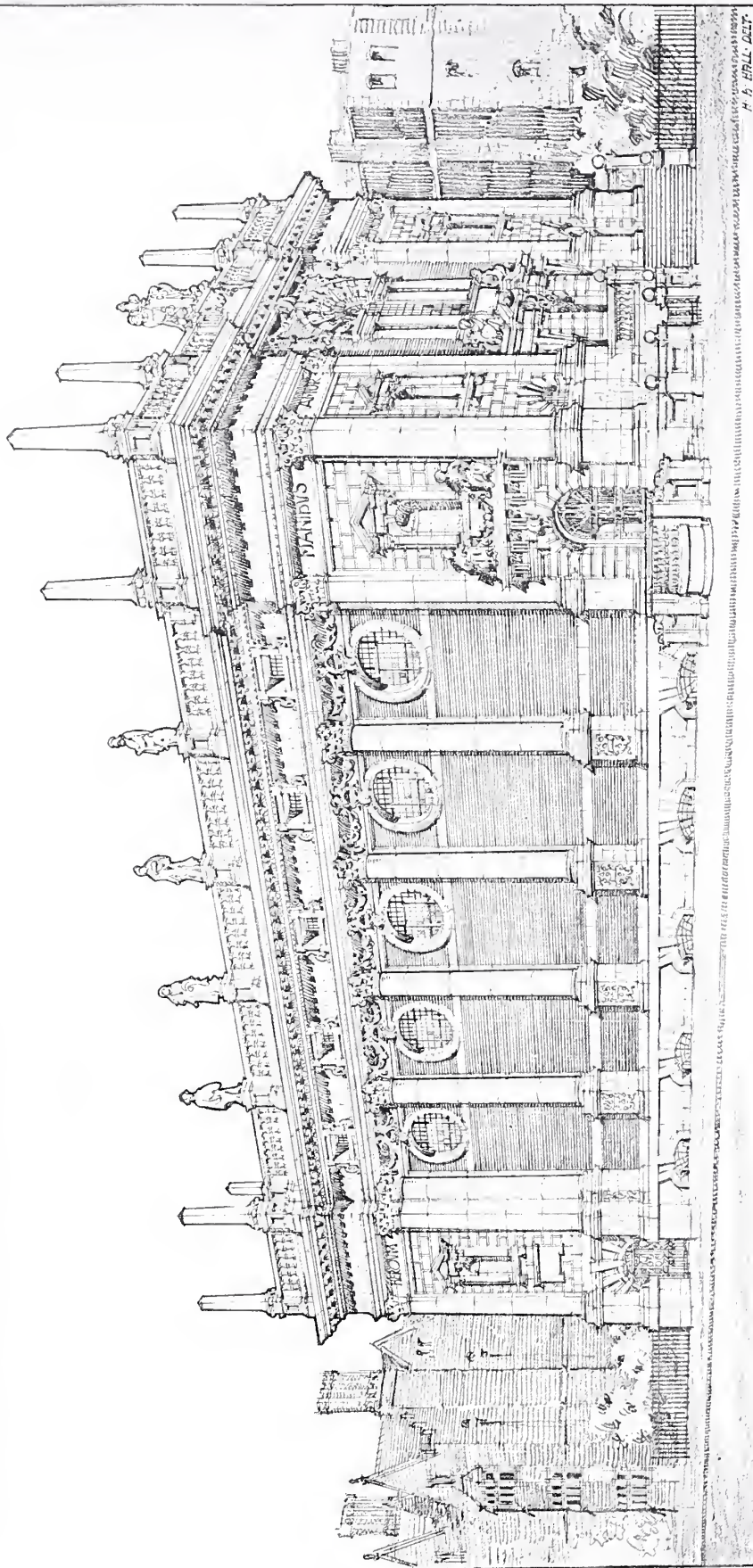
LAWRENCE WEAVER, F.S.A.



FIG. 19.

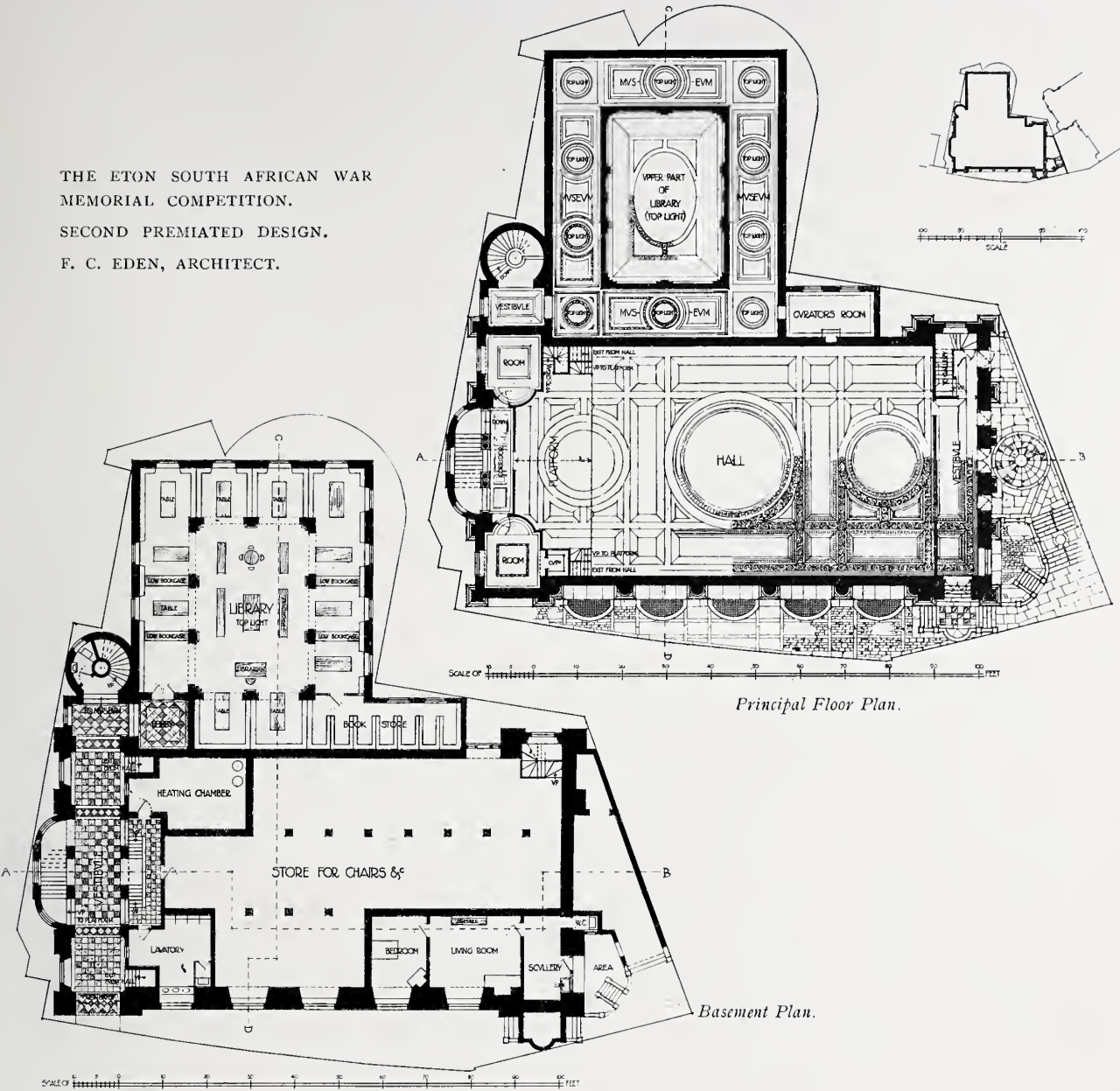
I am indebted for kindly permission to reproduce photographs to the Lord Bolton, F.S.A. (Fig. 8), to Alfred Harris, Esq. (Figs. 1, 2 and 3), to G. Harry Wallis, Esq., Director of the Art Museum, Nottingham (Fig. 11), to C. King, Esq. (Fig. 10); and to the many owners of the cisterns illustrated, for allowing me to photograph their treasures.

THE TON MEMORIAL
SECOND PREMIED DESIGN



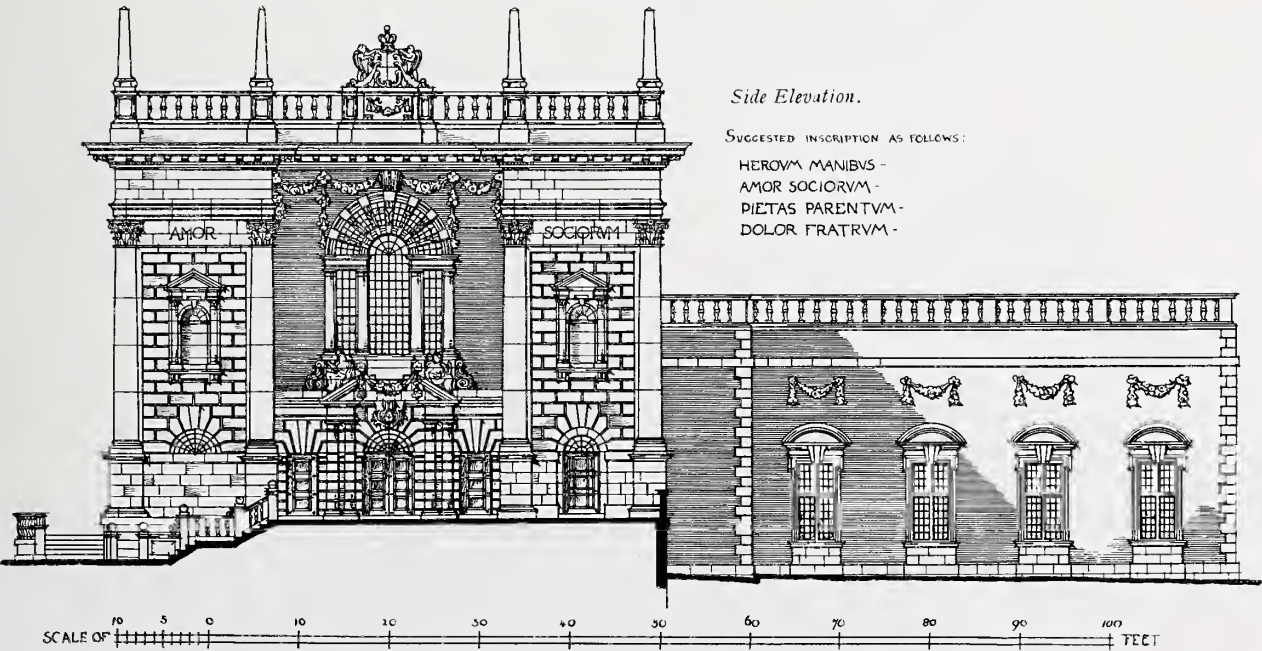
F. C. EDEN, ARCHITECT.

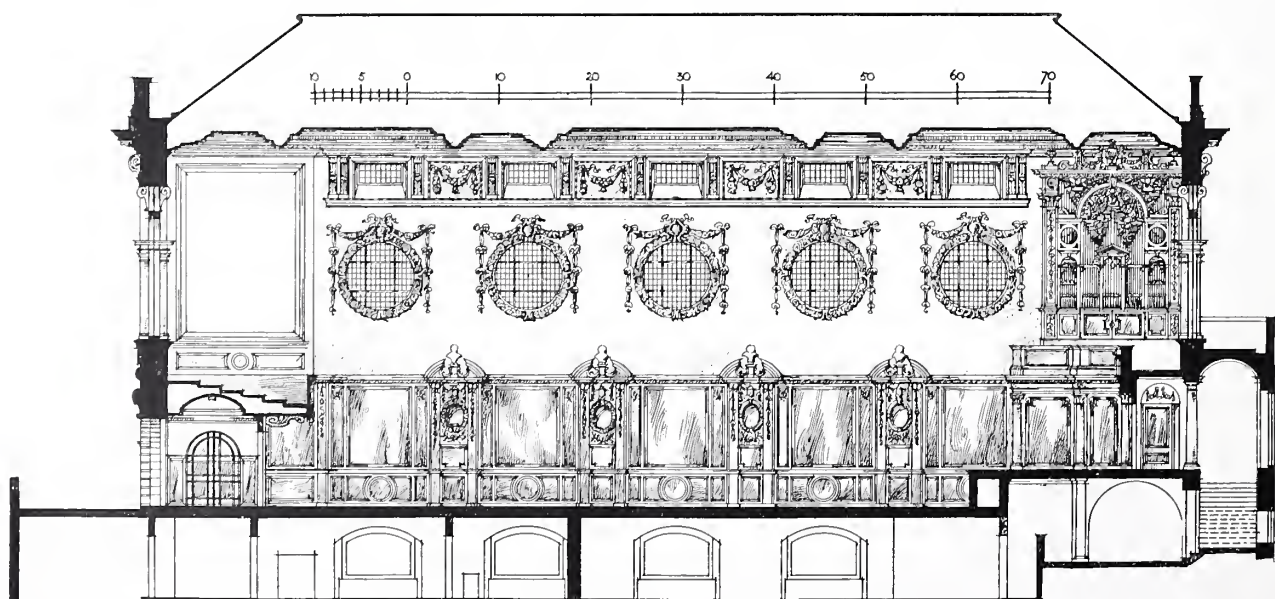
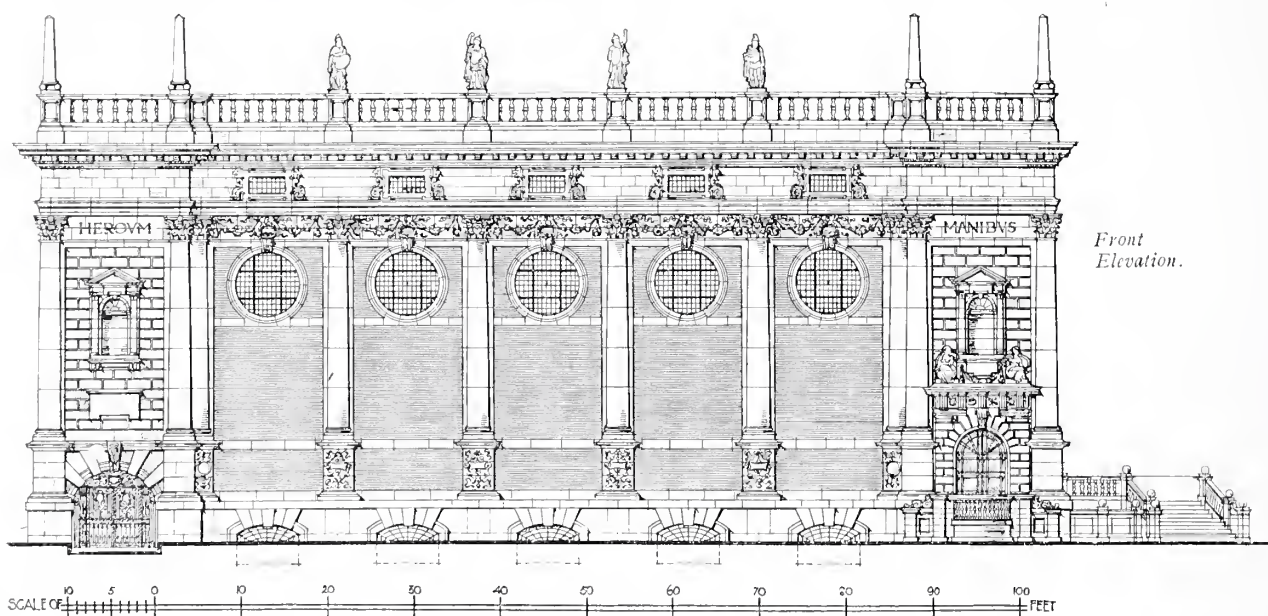
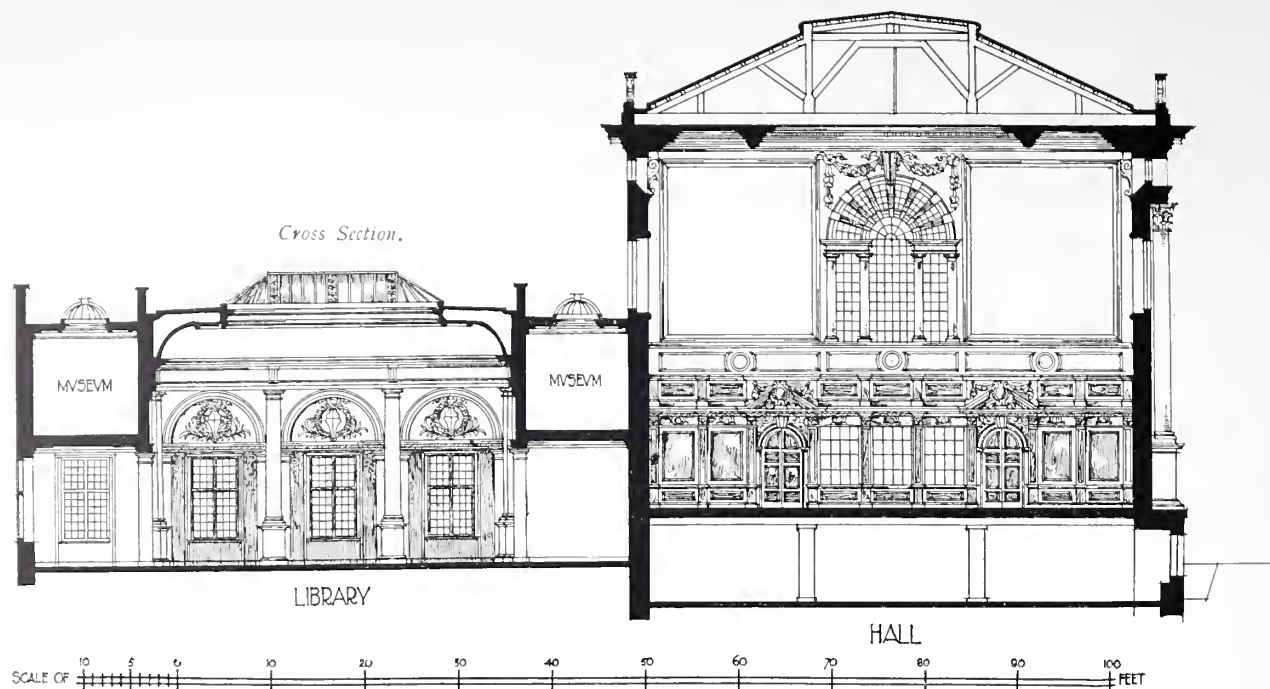
THE ETON SOUTH AFRICAN WAR
MEMORIAL COMPETITION.
SECOND PREMIATED DESIGN.
F. C. EDEN, ARCHITECT.



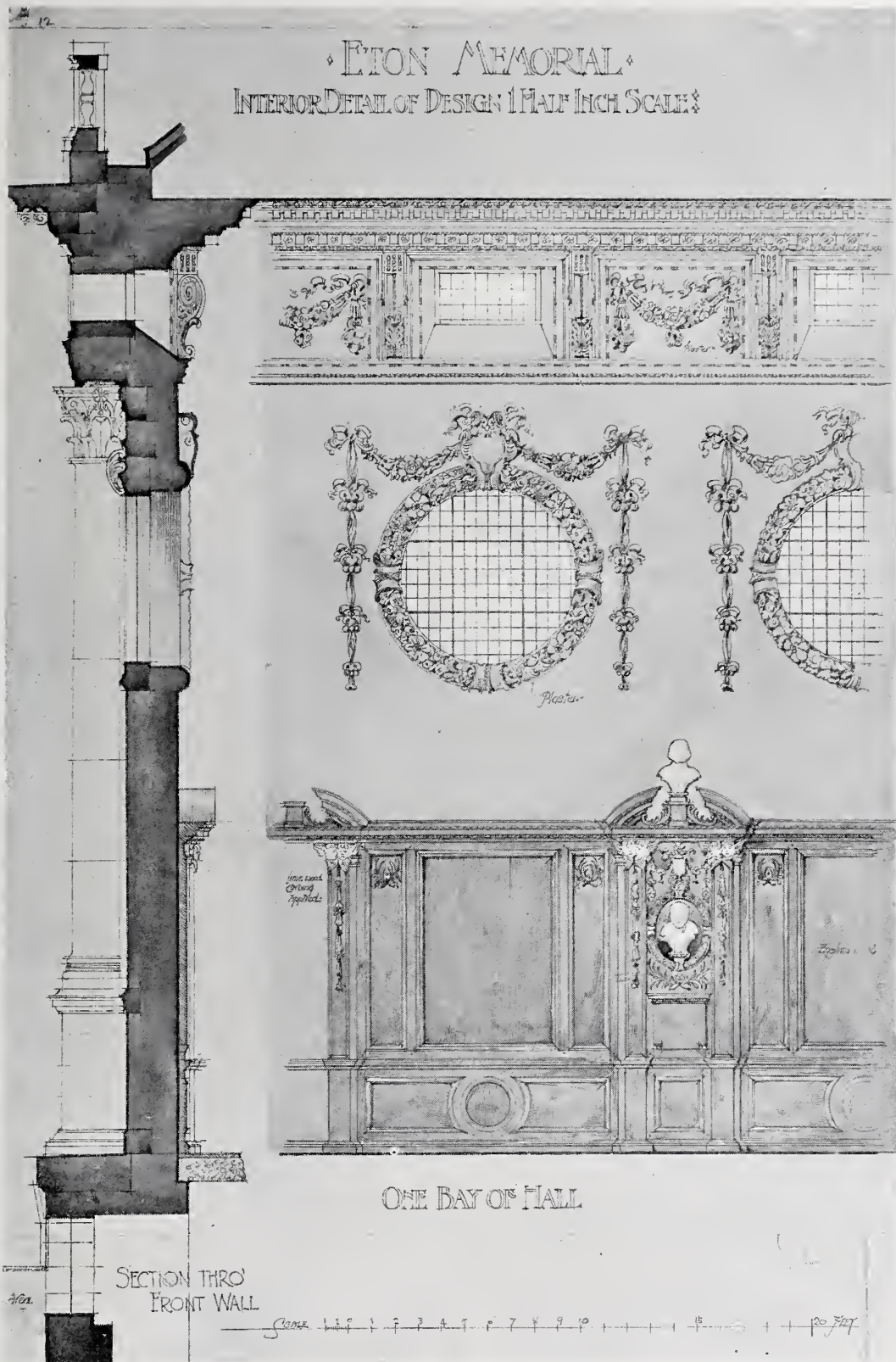
Principal Floor Plan.

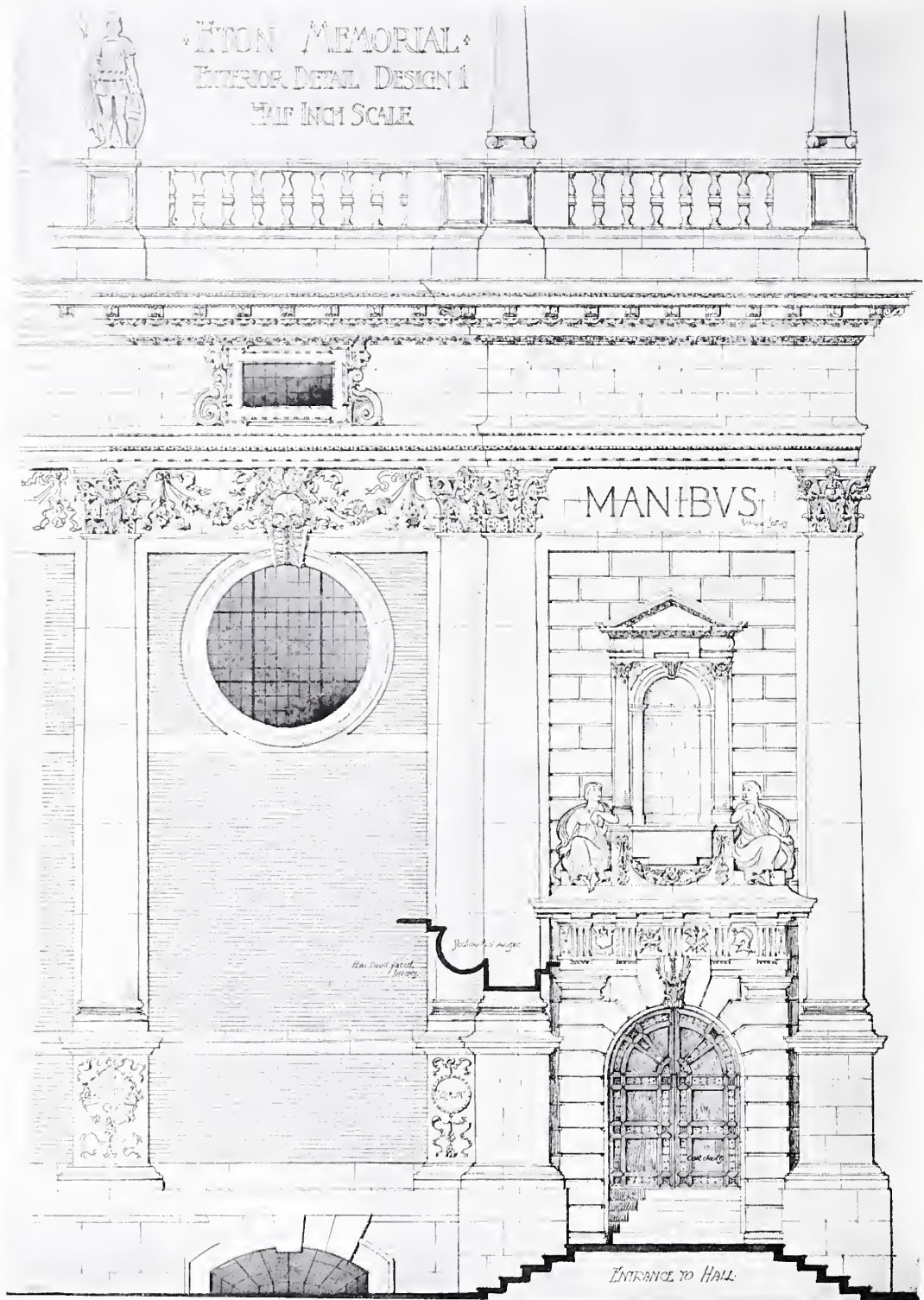
Basement Plan.





Longitudinal Section.





SECOND PREMIATED DESIGN. DETAIL.
F. C. EDEN, ARCHITECT.

The Cloth Hall, Newbury.

LAST October the Cloth Hall at Newbury, in Berkshire, was opened, after repair, with some ceremony. In descriptions of the proceedings on this occasion the word "restoration" was conspicuous for its absence, yet certain very questionable "restorations" undoubtedly took place. The committee for, let us say, "repair," was guided by the local architectural taste, and what that was we can judge by the towers of the adjacent municipal buildings. In extenuation, it must be remembered, first, that the Cloth Hall was tumbling down; and secondly, that it had been "restored," in the fullest sense of that invidious term, in 1829, when a pointed doorway was inserted at the north end, and labels were put over the gable windows, while a very "Gothic quatrefoil" in plaster was inserted near the apex. All these and other improvements have now been removed, a few old features taken from drawings made early in the nineteenth century or resting on the tradition of the "oldest inhabitant" have been reinstated, and the Cloth Hall, no longer in danger of ruin, has been turned into a museum of antiquities and natural curiosities. Adjoining it on the east—that is, at the end furthest from the market-place—is a building to which I am anxious to call attention, and at

the same time I do so with the greatest hesitation. It is, no doubt, very much dilapidated, and in need before winter of such repair as may protect it from the incursions of the weather. Also, it has very little of the structural ornament in latticed windows and carved pendants which attracted attention to its neighbour the Cloth Hall. It is locally called the Storehouse; it extends from near the eastern end of the hall some 60 ft. towards the canal wharf, and consists of a long, low gallery or balcony, with a wide roof corbelled out so as to overhang the balcony, which itself overhangs this part of the market-place. All is constructed of large timbers, carefully dovetailed and otherwise fitted together, of oak and pine. The design is evidently intended to suit the purposes of a great woollen market, the sellers with their wares being raised only a few feet above the buyers below. The only access from the ground to the gallery is by a massive double staircase in the centre, of very peculiar construction, and worthy, I venture to think, of both careful study and of preservation. The whole building, as well as a row of smaller stores which connects it with the Cloth Hall, is of early seventeenth-century work, possibly of the time of the celebrated "Jack of



Photos: J. W. Righton.

THE CLOTH HALL, NEWBURY. BEFORE AND AFTER RESTORATION.



Photo: H. Favarger.

THE STOREHOUSE, NEWBURY.

Newbury," of whom the burghers of the ancient town are so proud. In this case it is older than the hall, and indeed, from its genuine if somewhat decayed condition, for it did not share in the destructive restorations of 1829, of very much greater interest. I do not recall anything like it in England, though I have seen something of the kind in Norway, and there are features among the architectural glories of Bruges and other cities of the Low Countries of which it may remind us. You will understand how much I hesitate in

calling your attention to this curious building. Weather-tight is all I would wish to see it. Repair or any renewal of the features of the ancient construction will be to falsify it. Rather than see it "restored" I would be content to know that an architectural student had made careful measurements and drawings of the timbers, especially of the staircase. Some planks have already disappeared, and it is much to be feared that even a mild winter will injure the roof irretrievably.

L.

Sewage Disposal Works for Isolated Dwellings.

I.—SOME PRINCIPLES OF TREATMENT.

WITH such a complex subject as the treatment of sewage it is difficult to get to grips in a single paragraph; but as the editor has requested me to try to do so, the attempt must be made and the reservations detailed after.

Natural Purification of Sewage.

The elimination naturally of the foul matters in sewage is accomplished by the action of micro-organisms and their products; certain organisms

(anaërobes) liquefying the suspended solid matters in the absence of air, preparing the sewage for other organisms (aërobes) who eliminate the dissolved organic matters in the presence of abundant air. These processes are complicated by the existence of another large class of organisms (facultative anaërobes) distinct from the other two, which is capable of working in the absence or presence of air according to the material presented to it to work upon. The waste products of the organisms (enzymes) also assist in the work of

“breaking down” the polluting matters. These micro-organisms are housed naturally in the soil to a few feet below the surface, and consequently the land has been utilised for the purification of sewage for a very considerable period. As far as can be ascertained, the various classes of micro-organisms are promiscuously mixed in the soil, and the two operations in the purification of the sewage may proceed side by side, but because of this the rate of purification is slow. It is believed that the organisms that require air predominate at the surface of the soil or nearest the air, and the others, working in the absence of air, deeper down; but as those deep down are required for the first stage of purification (the elimination of the suspended solids), and those on the surface are required for the second stage (the elimination of the dissolved organic matter), this may explain the slowness of purification by the soil. Moreover, long experience of purification by the soil has shown that if crude sewage is turned on to the soil it gradually clogs the surface with the suspended solids, possibly because the anaërobic bacteria are not present there in sufficient numbers to deal quickly with it.

From these notes I exclude any consideration of the tub or earth closet system. The cottager with a good garden can always dispose of the waste matters from his establishment in the soil around him, with no discomfort to himself and considerable advantage to his garden. It is the method advocated by Dr. Vivian Poore and practised by him and many other people in rural districts. But the problem of large dwelling-places, housing several dozen or several hundred people, cannot be met on these lines. A single tub closet may be innocuous, but a range of six becomes, despite daily attention, a nuisance, and in summer an abomination.

Artificial Methods and Substitutes for Natural Purification and their Defects.

It may be objected that I restrict these notes to purification by bacteriological means; that I make no mention of the various chemical and other processes which have been devised from time to time for sewage treatment. Well, science has demonstrated beyond the possibility of dispute that the purification of sewage is in all cases due to the action of micro-organisms whether the treatment is carried out on the land, in water, or in artificial beds or tanks. Consequently the bacteriological action is not one of many methods of treatment, but the only treatment. Chemicals only operate so far as the first stage of treatment; that is to say, that by rapidly throwing down the suspended solids the clearer (supernatant) water containing the dissolved

organic matter can be more speedily passed on to the nitrifying or second treatment beds. Thus the value of chemical treatment for very large flows is easily demonstrated. But with the supernatant water a certain proportion of suspended solids always escapes, and so the final effluents from chemical systems are nearly always subject to secondary decomposition. But for small domestic installations chemical and other systems may all be ruled out as being either too expensive or requiring too much attention.

Defects of the Soil in Natural Purification.

We can now take our consideration a step farther. Experience in land treatment has proved that certain soils of the lighter kind, having most interstitial space, are better for purification purposes than those of a heavy, close kind, having little or no interstitial space; and although no soil is, scientifically, useless for purification purposes, some soils are useless for the practical work of purifying sewage, as they introduce requirements of time, area (and consequently cost), with which it is impossible to comply. Even where the soil is practically suitable for purification, the difficulty of the surface-clogging still exists, and this can only be obviated by relieving the soil of the initial work of purification, viz., the elimination of the suspended solids.

The difficulties with the land in practical purification led to the devising of artificial substitutes for the soil as a housing medium for the micro-organisms. The efforts made in this direction have met with sufficient success to justify their adoption for practical purposes, though finality in detail has not yet been reached.

The Controversial Point.

It is in regard to these artificial housing places that a difficult and somewhat wearisome controversy has arisen. We have noted that there are two operations in sewage treatment: first, the liquefaction or reduction of the solid matters in simple suspension; and, secondly, the elimination of the dissolved organic matters; the latter constituting the more dangerous part of the pollution. We have noted also that naturally in the soil the first operation is effected by bacteria working under anaërobic conditions, and the second by organisms working under aërobic conditions. I use the word “conditions” advisedly, because the new class of facultative anaërobes, which may work either in the presence of air (aërobically) or its absence (anaërobically) according to the material presented to them, brings fresh factors into the question. As Sir Alexander Binnie remarked at the recent Public Health Congress, the more

one studies these bacteria the more one is struck by their wonderful adaptability to existing conditions. It seems as if Nature had provided agents capable of dealing with the polluting matter under any conditions, however unfavourable, and probably but for this wise provision the world would be uninhabited to-day.

Thus, in schemes aiming at the reproduction of the natural process, we should imagine that all three classes of bacteria had their part. But anaërobic action is mainly that phase of fermentation called putrefaction, and offensive gases and smells may be evolved by it. On this account anaërobic action has been very vigorously opposed in some quarters, and this opposition has led to attempts to carry out the whole of the purification solely under aërobic conditions.

Anaërobic plus Aërobic Treatment versus Aërobic Treatment only.

Whether sewage can or cannot be purified solely under aërobic conditions is the main controversial point in the treatment of sewage to-day. Whatever may be claimed by the partisans of one view or the other this question has never been authoritatively settled, and until bacteriologists can be dogmatic over it I do not see how there can be much progress. Mr. W. J. Dibdin is the great exponent of the aërobic theory; and, being one of the pioneer workers in this field of research, his opinions are entitled to respect. But his ideas are at variance with the most recent views of a number of eminent bacteriologists and experts, such as Dr. Rideal, Dr. Sims Woodhead, Professor Marshall Ward, and others: so that if the question was settled by the weight of evidence, the necessity of preliminary anaërobic treatment would be quickly established.

That the action in a contact bed dealing with crude sewage is wholly aërobic is gravely doubted by such authorities as Dr. Rideal, Dr. Sims Woodhead, and others. The advocates of preliminary anaërobic treatment do not claim to have entirely excluded the aërobes from the anaërobic tank; and, similarly, they do not believe that the anaërobes are entirely eliminated in the aërobic bed. They aim merely at accelerating the process of purification by the separation, as far as possible, of the two processes. Dr. Rideal goes farther; he attributes the failure of the contact bed in dealing with crude sewage to the fact that the necessary anaërobic process is hindered and retarded. And it may very truly be urged, that if Nature provides the anaërobes, they are a necessary factor in the purification process.

Moreover, it must be admitted that Mr. Dibdin has changed his methods if he has not receded

from his views. The coarse coke contact beds tried at Leeds and elsewhere for crude sewage were admittedly a failure, quickly clogging up and becoming useless; so that any pretension that crude sewage can be treated on such contact beds alone has been abandoned. But since then Mr. Dibdin has abandoned the use of coke and such-like materials which are liable to "break down" or settle, and has patented a new form of coarse contact bed in which purpose-made tiles or pieces of slate are built up to form a sort of honeycomb to house the bacteria. Even with this new form of contact bed as used at Devizes there is a gradually increasing loss of capacity during use, and the deposit requires periodical "flushing-out" with a hose.

The Case for and against the Contact-Bed System.

Two facts are mainly relied on to prove that the action in these new Devizes beds is aërobic:—

1. That by rapidly filling the bed from the bottom thin films of air are imprisoned on the undersides of the slates, sufficient to aërate the sewage.
2. That no offensive odours are produced.

The first reason given seems to be a piece of assertion pure and simple; it would be extremely difficult to prove that any appreciable quantity of air is so retained. It is equivalent to saying that the pressure of a head of water is unable to drive out the air from a filling material honeycombed with holes. The retention of air, even if admitted, does not however prove that the action in the bed is wholly aërobic. As to the absence of odours, the statement must be regarded as comparative. You cannot have sewage without smell, but to most people fresh emulsified sewage is not usually abominably offensive.

The second reason brings us to a consideration of "putrefaction." On this point I may be allowed to quote Professor Ward's evidence before the Royal Commission. The action of the bacteria and their products was defined by him as follows:—

I should say "fermentation" in the broad sense of the term; fermentations of various kinds leading to the destruction of the nitrogenous bodies, and in the end to the breaking down of these bodies into quite simple harmless constituents, like carbon dioxide, ammonia, and water, and indeed some of these, ammonia especially, being eventually further altered; and then fermentations of bodies like cellulose, of which we have of late come to know something, which would be broken down into partly gaseous and partly solid constituents, carbon dioxide and water in the end; and, in fact, the breaking down by fermentative processes to such constituents as could be used later on by plants.

Within the term "fermentation" Professor Ward includes putrefaction (evidenced by the production of evil-smelling gases) as "merely a particular case of fermentation." Questioned again on this point he affirmed that the processes "are similar processes." In answer to a further inquiry whether there were two kinds of fermentation, putrefactive or anaërobic and aërobic, Professor Ward answered:

Well, the attempt has been made to draw that distinction, but my opinion is that it cannot be held, and you will find that opinion expressed by most recent writers, such as Miqula and Lafai and other authorities; they say it breaks down. The attempt was made to uphold putrefaction as a particular process in which evil-smelling gases came off, and which was brought about by the action of anaërobic organisms; but neither of these characteristics is true. I mean, you may have anaërobic fermentation going on without putrefactive gases, and aërobic fermentations with them.

Thus the assertion that the absence of offensive odours is a proof of aërobic purification does not receive support from bacteriological authorities. Moreover, crude sewage can be treated on the soil, without any offensive odours, provided the sewage is not applied in such quantities as to make the ground "sewage-sick." So that the new contact bed accomplishes no more in this direction than has already been achieved by the soil.

A Theory regarding Contact Beds.

My contention with regard to this new contact bed is not that it is inefficient or does not produce good purification results, but that the action in it is not wholly aërobic. I advance a theory that contact beds are simply a reproduction of the natural soil on a magnified scale, and in the soil we know that anaërobic and aërobic processes are working side by side. If you continually turn crude sewage on to one patch of soil, the fine particles will speedily be clogged; if you turn crude sewage on to the coarser particles of a coke contact bed they will also be clogged, but not so speedily. Both will last longer if you give them periods of rest. In the new contact bed the same inevitable clogging is present; but the construction of the bed-filling renders it possible to get rid of it fairly easy.

Thus Mr. Dibdin's new contact bed may prove to be the happy solution of our difficulties. He may have devised an excellent substitute for the natural soil, in which, owing to the large amount of interstitial space, the inevitable clogging proceeds slowly, and can easily be removed when necessary without trouble or expense. But that the action in this new bed is wholly aërobic is a conclusion that must, in the light of present knowledge, be strongly resisted.

Necessity of Anaërobic Action.

There are, too, strong reasons for regarding anaërobic action as inevitable in the treatment of sewage. One of these is concerned with the question of cellulose; and on this point I quote some more of Professor Marshall Ward's evidence before the Royal Commission:—

The cellulose-destroying organisms have been isolated of late and found to be anaërobic. They carry on their work of destroying vegetable fibre, vegetable cell walls, dead leaves, and so forth, in the mud, in pools and in marshes, in ponds, etc. And it is owing to their action that quantities of marsh gas are given off at various times. And in late researches in Neva mud a cellulose-destroying organism has been isolated, which, provided it is cultivated in the absence of air, fixes itself upon pieces of paper, causes the fibres slowly to swell and dissolve, and, in fact, destroys the fibre, destroys cellulose, and there can be no doubt that substances like paper are destroyed in that manner in the soil or in domestic sewage. This occurs only in the depths, but there have been cases described where actions of this sort can go on nearer the supply of air—say, at the surface of a liquid—provided some other organisms can protect the anaërobic one from the action of oxygen.

Q. A large proportion of the sewage must consist of cellulose or allied forms; there must be a considerable quantity of material of that kind in the sewage?

A. I should think so Materials like paper and wood and any vegetable refuse would, of course, contain a great deal—I mean comminuted substances, like straw, parts of vegetables that have passed undigested through animals, and such-like bodies, would contain large quantities of cellulose.

Q. But did I understand you to say that all the cellulose-destroying organisms were always those which acted under anaërobic conditions?

A. Yes; I think I am right in saying they are all anaërobic.

Q. You do not know at present of organisms which can destroy cellulose, and especially which would destroy simple suspended articles of cellulose and the like, under aërobic conditions?

A. I can recall none. No; they are all anaërobic that have been worked out; all the cases that I am acquainted with concern anaërobic forms.

Q. Then might we infer from that that in the disposal of sewage it is most desirable that, at all events, a part of the process should be of an anaërobic kind?

A. Yes; otherwise I do not see how much of the solid matter would be got rid of.

In the case of small installations, there are also additional reasons for anaërobic action. The varying nature and composition of sewage furnishes

one reason. The sewage of towns differs in its character, strength, and quantity, not only from day to day but from hour to hour, and the same holds good with regard to purely domestic waste. One of the great virtues of anaërobic action lies in the liquefying of the sewage and the equalising of its strength. Thus the strong sewage of one hour is mixed with the weak sewage of another, and a more equal effluent is produced for subsequent aërobic treatment. In a town system the sewage usually has to travel a considerable distance, often several miles, before it reaches the outfall. During this passage through the sewers anaërobic action is going on, and the sewage arrives at the outfall in a more or less septicised and liquid condition. But in the case of small installations the distance traversed is quite inconsiderable, the outfall sewer is perhaps only a few hundred yards long, and the sewage arrives in a very fresh condition, the fæces and paper being little if at all broken. I was once asked to advise on a small double-contact bed system which was not working satisfactorily, the outfall plant was only some two hundred yards from the house. The outfall pipe at the first bed was choked with fæcal matter and paper. The gardener, who looked after the plant, told me that he had periodically to clear out this accumulation and bury it. I have also seen other plants where the sewage arrived in a more emulsified condition but where the bottom was similarly clogged up with the solid matters in suspension.

The Application of Anaërobic Conditions.

I have endeavoured to indicate on several grounds the inevitability of utilising anaërobic action for the reduction of the suspended solids, and the main consideration now left to us is the manner in which this action shall be applied. The combination of anaërobic and aërobic conditions in the ordinary coke contact bed has proved a failure, because of the clogging and the difficulty and expense of renewing the coke. Mr. Dibdin's new patent slate-waste beds at Devizes seem to promise well; but, even if the clogging difficulty is largely overcome, they do not remove the objection, already given as regards small installations, that the solid fæcal matters and paper are liable to choke the bottom of the bed before sufficient time has elapsed for digestion. Small contact-bed systems have, ere now, been provided with grit chambers, ostensibly to catch sand and other irreducible mineral matters, but in reality to intersect the solid fæcal matters, paper, etc. And if you have to periodically clean filth out of the grit-

chamber, you might just as well do without any treatment works at all.

Generally speaking, for small installations an anaërobic tank will be required. I say generally speaking, because I can quite believe if the outfall drain is long enough the sewage of a small installation might be delivered sufficiently liquid and emulsified in condition to turn direct into a Dibdin patent contact bed, but these cases would be few and far between.

The tendency lately in regard to the anaërobic tank is to try to arrange a zonal or advancing treatment of the solids, so that the liquefied effluent is delivered to the aërobes in the best possible condition for nitrification. Finality here has not been reached, and in many cases there is a danger of the sewage being over-septicised, in which case it becomes exceedingly foul and intractable.

Subsequent Aërobic Treatment for Anaërobic Tank Effluent.

The filters and beds used for the subsequent aërobic treatment to eliminate the dissolved organic matter need only be briefly touched upon here. Coke contact beds have, for this, answered very fairly. They constitute one class of filter in the final treatment. In them the hydrolised sewage is "held-up" for a certain time. The other class of filters is that known as flow filters, this class including streaming filters and trickling filters. The streaming filter is always full, and the ingress and egress of the sewage is fixed at the same rate, so that the level never alters. In the trickling filter the sewage does not flood the beds, but is sprinkled or showered over the surface and trickles through. The sewage is sprayed either continuously or intermittently.

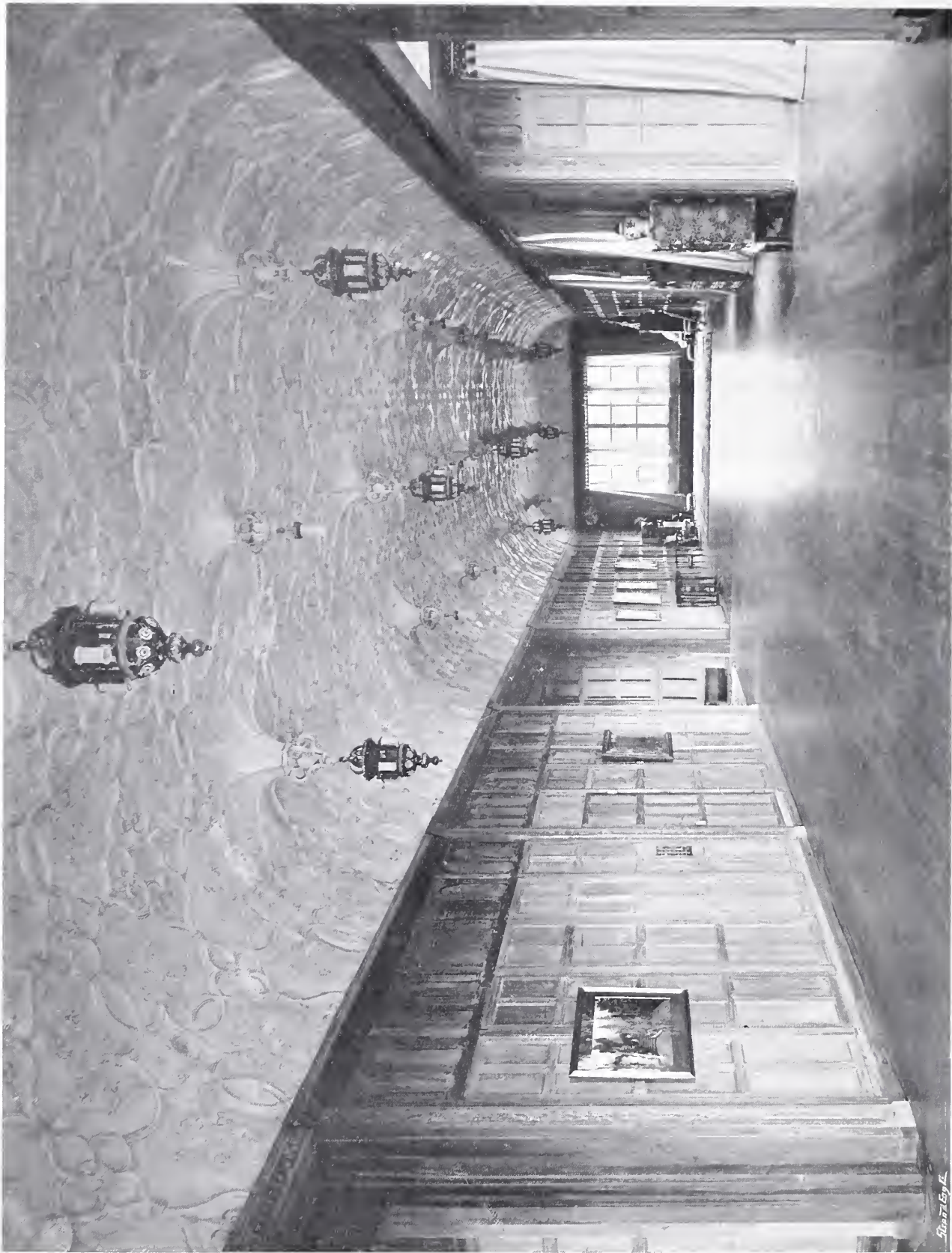
No Effluent Bacteriologically Safe.

A bacteriological examination of the most satisfactory effluent obtained by any process will reveal the presence of various organisms that must be regarded with grave suspicion, although chemically the effluent is irreproachable. It seems impossible to produce an effluent that, bacteriologically regarded, is safe to discharge into a potable water source. The idea of sterilising effluents by the aid of heat has, therefore, been suggested, and may possibly be further developed.

In a further paper I shall attempt to deal with some of the plant and apparatus which have been devised for small installations, together with some notes on their planning and laying out.

J. H. ELDER-DUNCAN.

THE ARCHITECTURAL
REVIEW, DECEMBER,
1905, VOLUME XVIII.
NO. 109.



FANEUIL HALL, WARE. THE LONG GALLERY.
W. WOOD BETHELL, ARCHITECT.

See page 269.

Competitions.

ISLINGTON CENTRAL LIBRARY.

THE Council of the Metropolitan Borough of Islington invited a limited number of architects to compete for this building, and in response received seven designs. Mr. John Belcher, A.R.A., the President of the R.I.B.A., was appointed to act as assessor, his award being final and binding subject to the right of the Public Libraries Committee to reject all the designs. The site chosen was an angle one at the junction of the Holloway Road and Fieldway, the back part of which extends for some 100 ft. along the rear of the houses facing the first-named road. Rights of light had to be respected, and regard given to the probability of future extension.

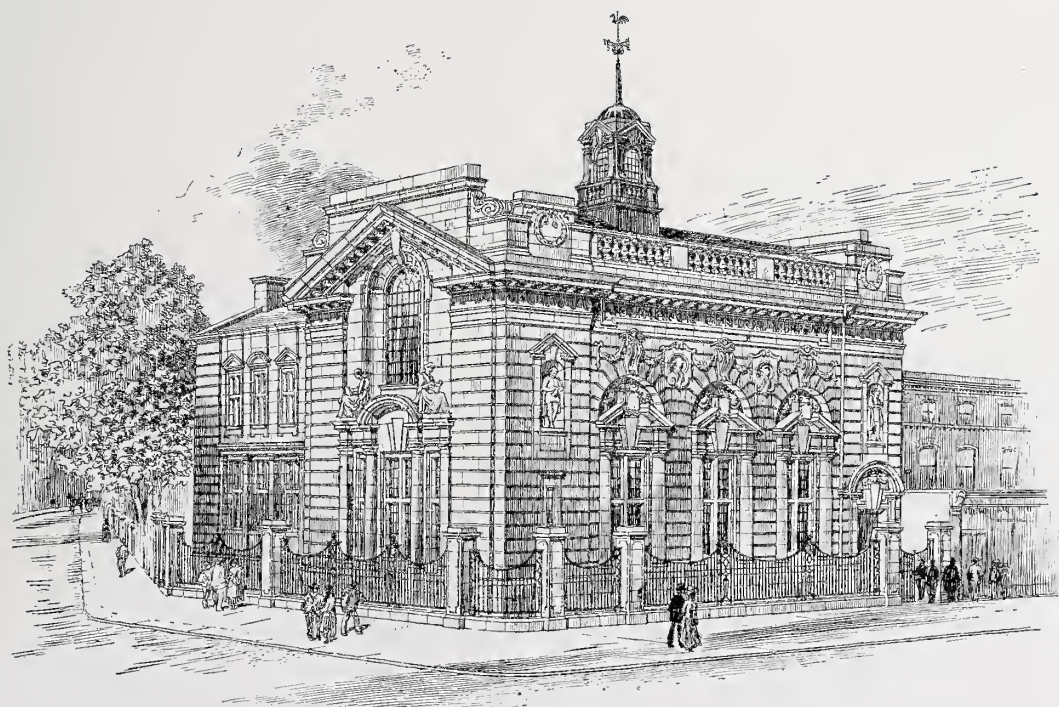
The competitors being all well-known men in the profession their efforts are distinctly disappointing with the exception of Mr. Hare's admirable plan, and the elevations of Mr. Leonard Stokes and Mr. Flockhart, both of which show quiet and refined feeling suitable in design for library buildings, which quality seems missing in the others with façades more suggestive of banks or public halls.

With regard to the plans the assessor could have had no difficulty in his choice, as the one selected (Mr. Hare's) stands out quite alone in its simplicity and particular knowledge of library requirements.

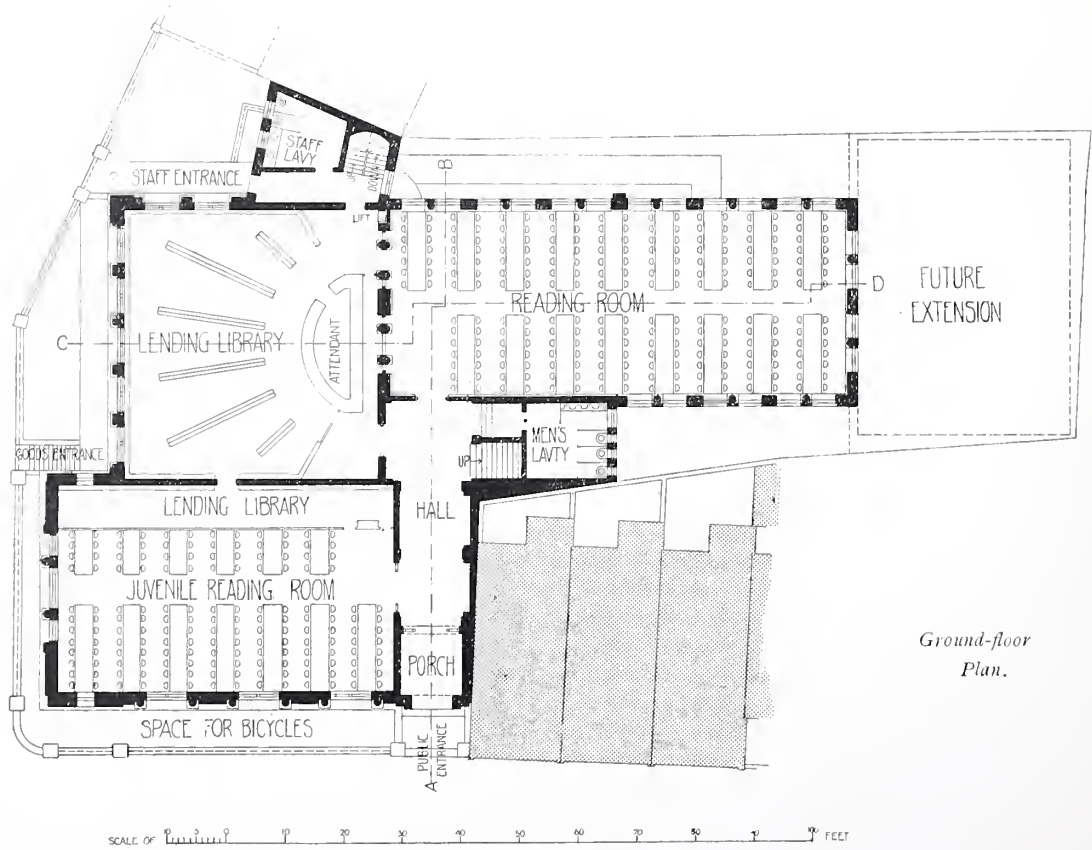
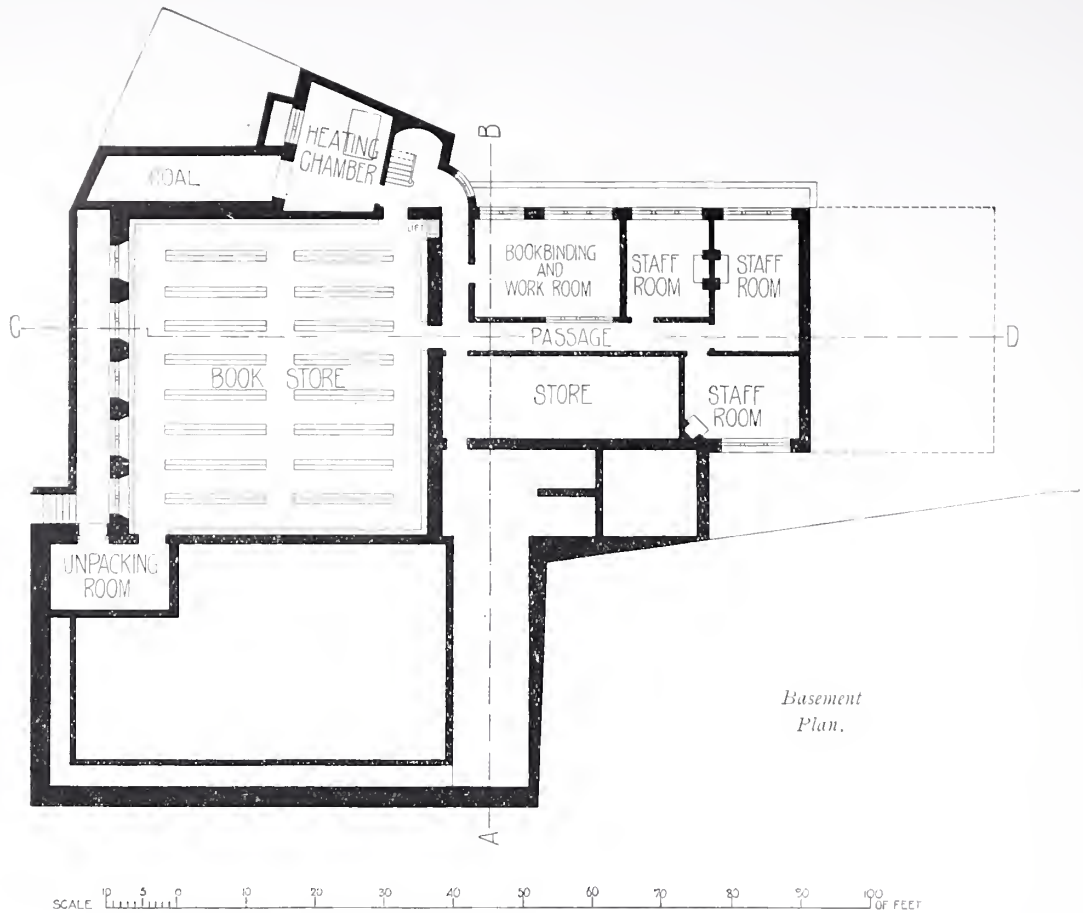
In this plan every detail connected with the successful working of a free public library has been carefully thought out, and the author is to be congratulated on his success.

The entrance is placed in the Holloway Road next to the adjoining property, and a broad corridor 12 feet wide leads to the principal rooms and to the staircase. On entering through a roomy porch the first room is the juvenile reading-room, and in this position it is well placed to prevent children from wandering about the building. It is in direct communication with the lending library, having accommodation for 160 readers and about 5,000 volumes, the latter being railed off from the general reading space. The lending library is placed between the juvenile-room and the reading-room. It is arranged on the "open access" system, with attendants' enclosure and radiating bookcases. A commendable feature is the top light immediately above the former.

This room is in easy communication with the bookstore and staff rooms situated in the basement and also with the reference library and librarian's room on the first floor. The reading room is directly opposite the principal entrance, being about 40 feet within the building. It is well overlooked from the attendants' enclosure in the lending library, and has accommodation for 238 readers. A good staircase, 6 ft. wide, leads to a fine corridor landing 13 ft. wide on the first floor, from which the reference library, large lecture-room, and small ditto, are directly approached. The reference-room is over the reading room, and is in the quietest part of the site. It is arranged to accommodate 108 readers at separate tables, and is in easy communication



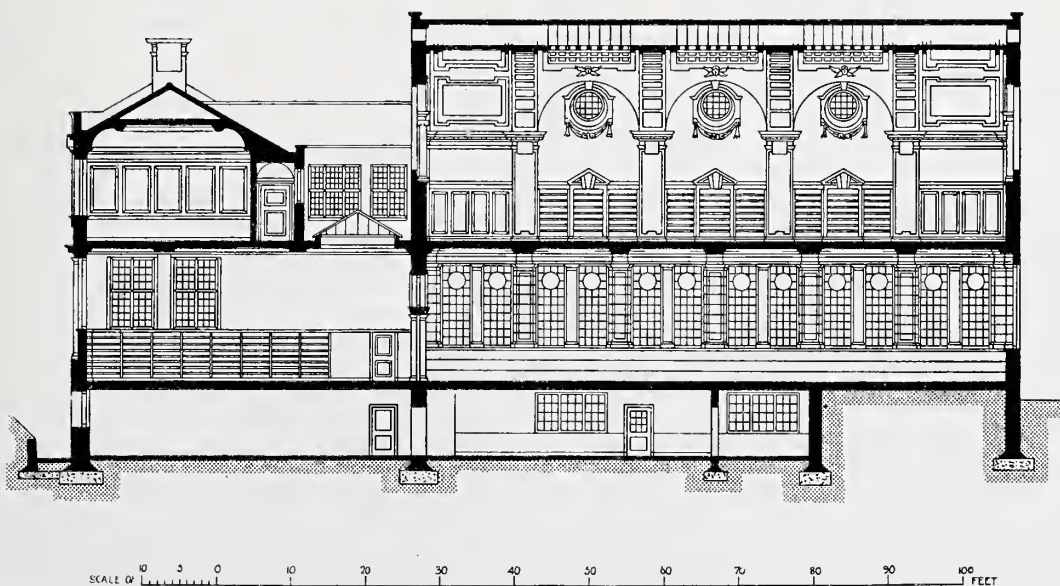
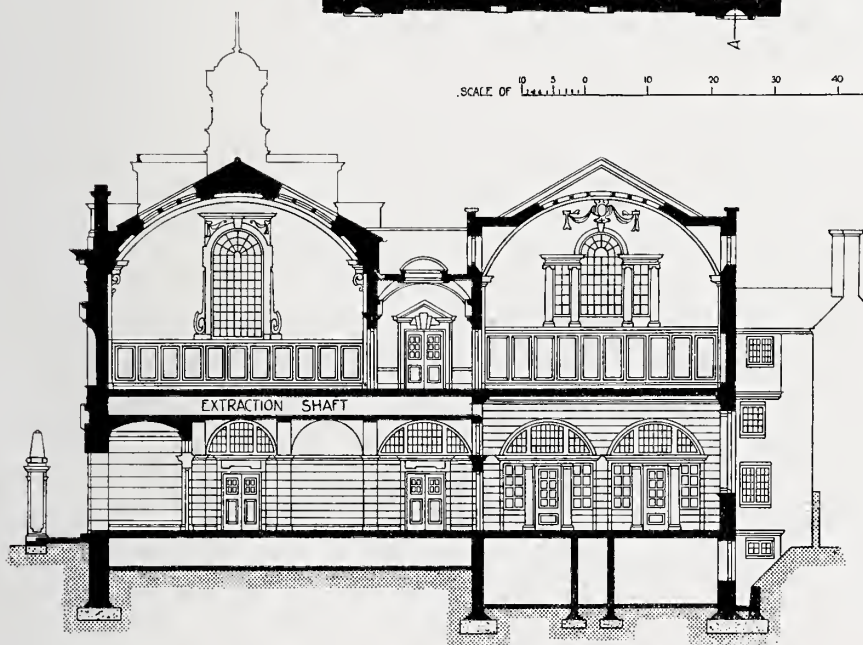
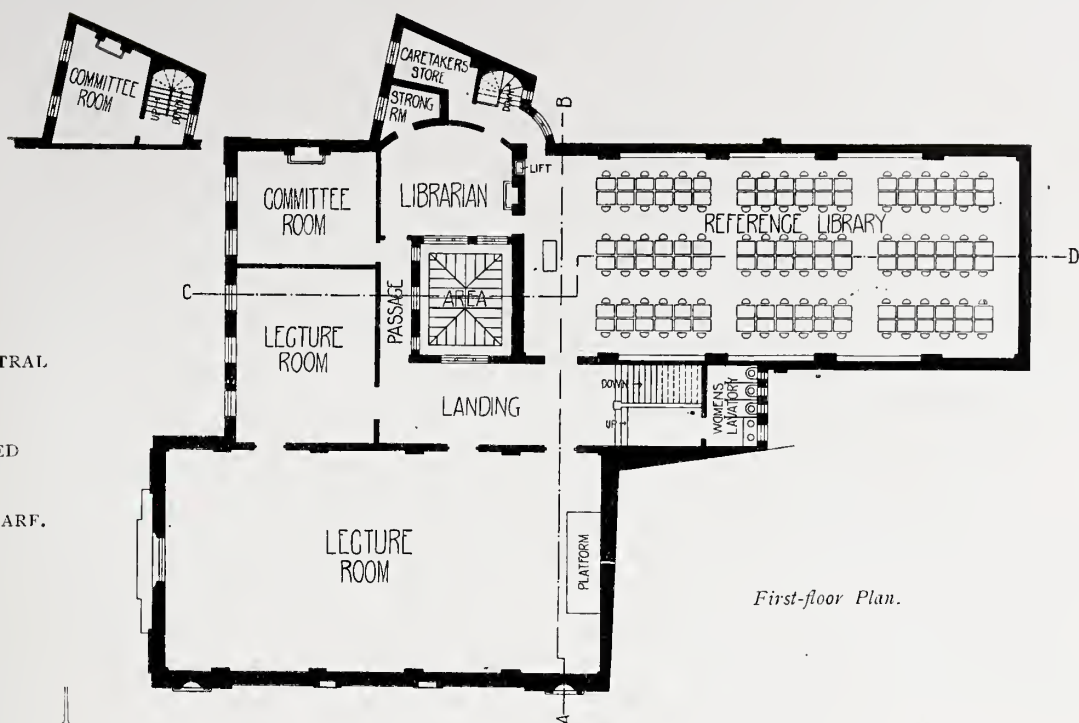
ISLINGTON CENTRAL LIBRARY. FIRST PREMIATED DESIGN, BY HENRY T. HARE.

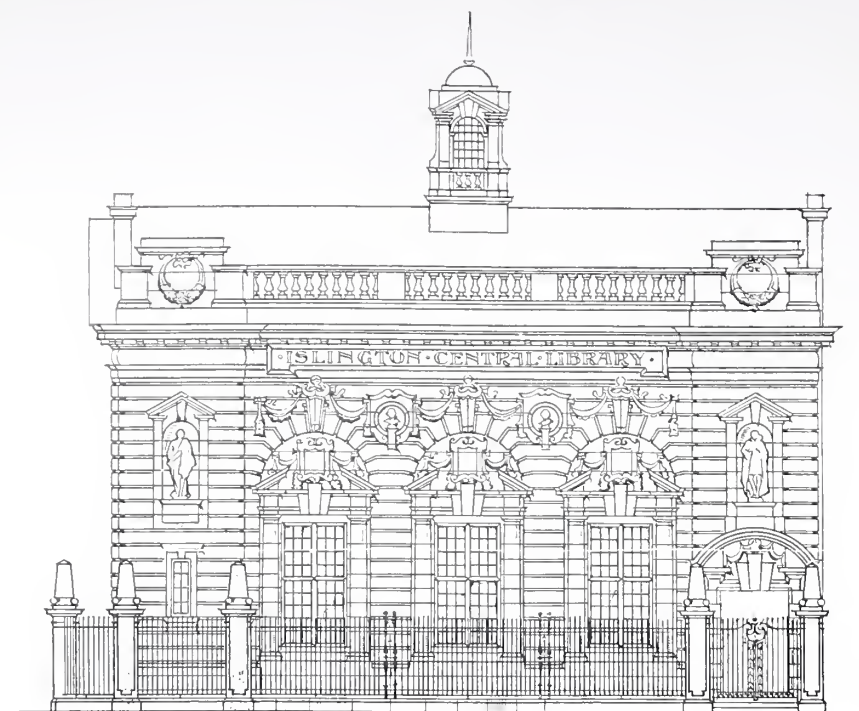


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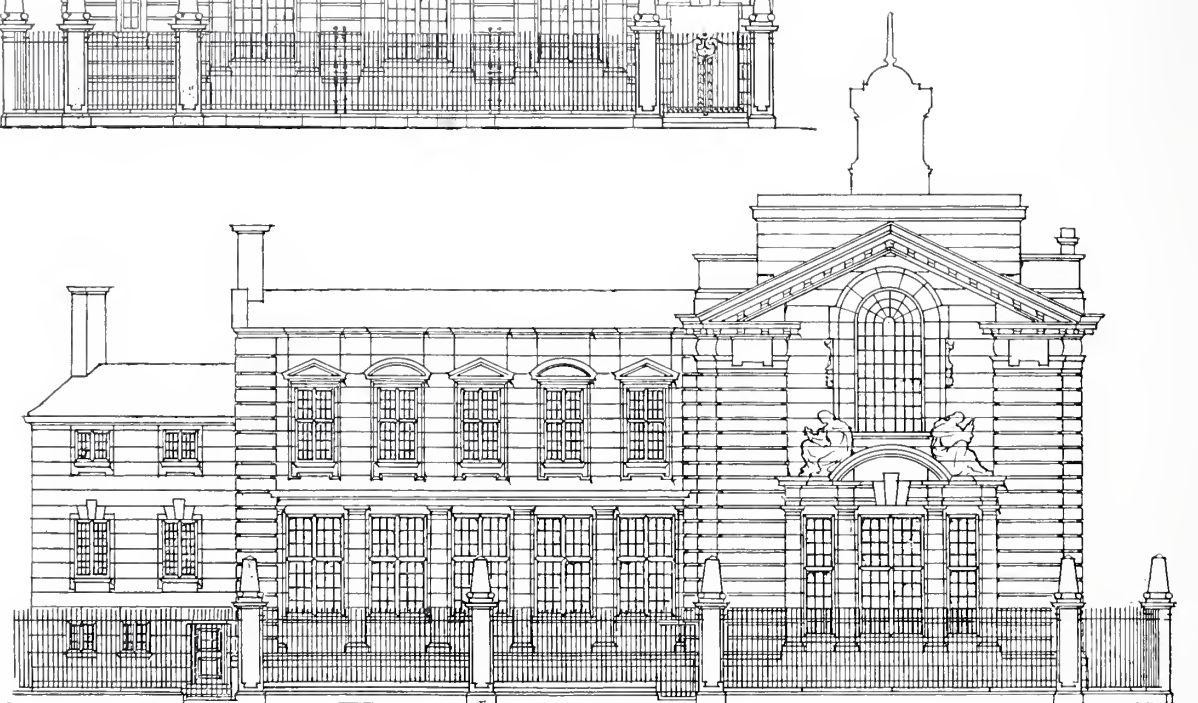
ISLINGTON CENTRAL
LIBRARY.

FIRST PREMIATED
DESIGN,
BY HENRY T. HARF.





ISLINGTON CENTRAL LIBRARY.
FIRST PREMIATED DESIGN,
BY HENRY T. HARE.
DETAIL ELEVATIONS TO HOLLOWAY
ROAD AND FIELDWAY.



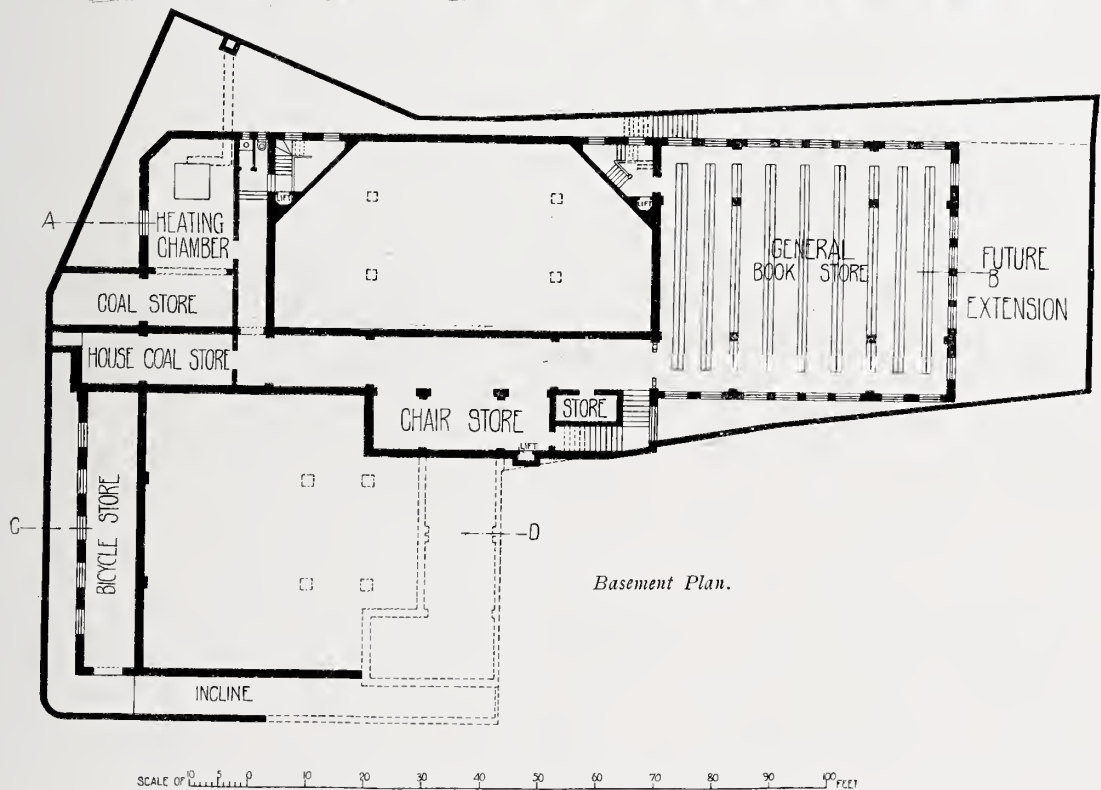
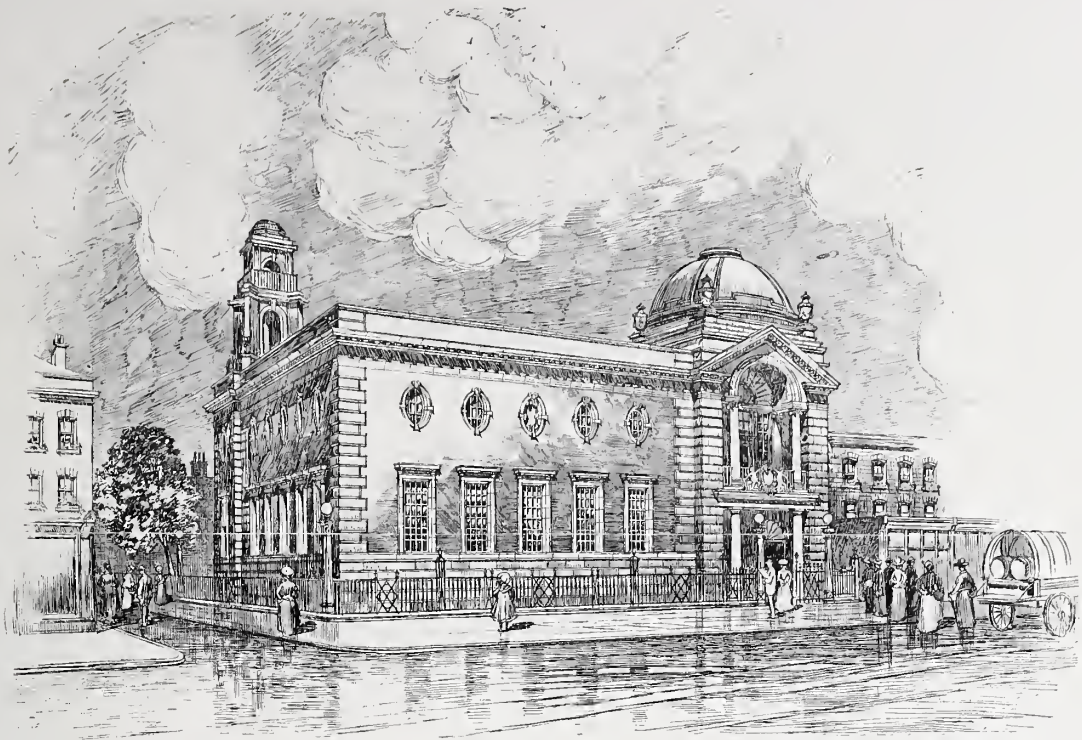
SCALE OF FEET 10 20 30 40 50 60 70 80 90 100

with the bookstore in the basement, and also with the staff on the ground floor. This room could be considerably extended at any time together with the reading-room beneath it.

The librarian's room with strongroom attached is in direct communication with the reference library, and is very well situated with regard to the working staff. The large lecture-room occupies the entire front towards the Holloway Road, the smaller ditto being immediately behind and communicating with it. It was a condition in the competition that the first-named should be capable of division into two rooms for meetings, etc. In this plan it seems that the public would have to go through the smaller lecture-room to reach the inner room, brought about by the division. This is hardly a satisfactory arrangement, but it is one that can easily be avoided.

Two committee rooms are given, the larger one being on the first floor in a quiet position away from the public rooms, and the smaller on a mezzanine between the ground and first floors. A large bookstore is placed in the basement, and has a separate entrance for goods through an unpacking-room directly approached by steps from Fieldway.

The staff have a separate side entrance from the same thoroughfare. Lavatories for the public are well and conveniently placed near the staircase, those for men being on the ground floor, and for women on the first floor. The public rooms are all lofty, well lighted, and of good architectural character, the reference-room being particularly pleasing in the manner of its lighting, quietude, and general comfort for readers of more serious literature.

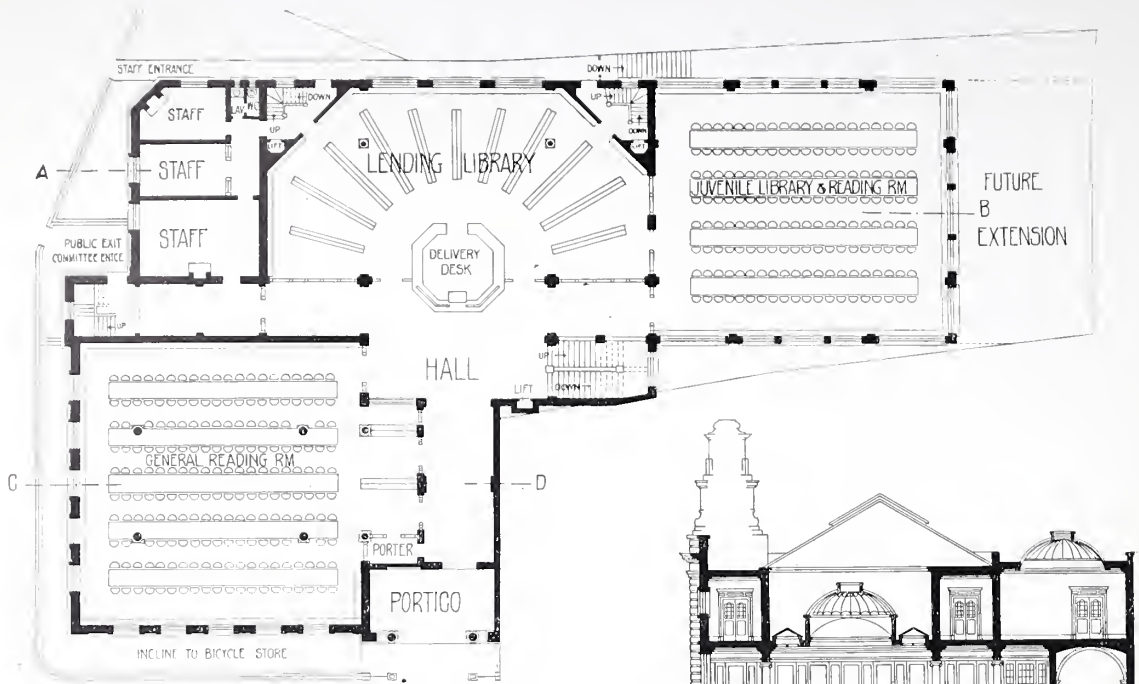


ISLINGTON CENTRAL LIBRARY. SECOND PREMIATED DESIGN, BY A. W. S. CROSS.

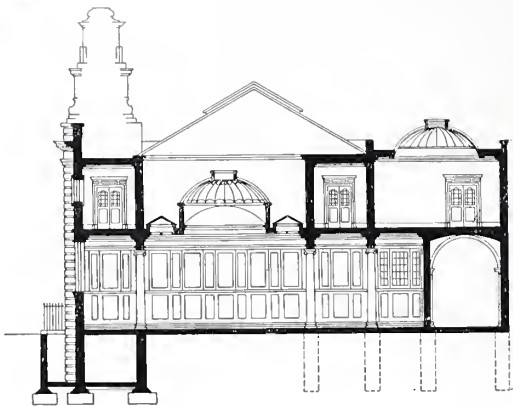
With regard to the exterior elevations, Mr. Hare will no doubt further consider them, but at present they seem commonplace and unworthy of the plan. The swags and circular niches for busts above the large windows facing the Holloway Road might well be omitted, and if the parapet could be kept at one level it would have a less fidgety appearance. There seem to be too many features in the design, each asserting itself instead of dropping into its place as merely a part of a

whole—the large window to lecture room facing Fieldway, the pedimented window with figures below it, the pedimented niches, the broken pediments and arches filled with carving to windows in Holloway Road, are too varied in design to be employed in the same building.

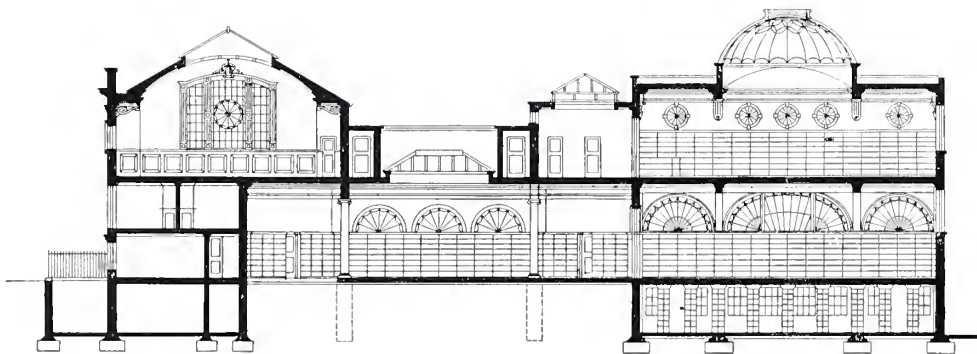
The design is massive, and it requires stronger and quieter detail of a more refined character. Would not the front railing be improved by having the top rail horizontal instead of in a series of



Ground-floor Plan.

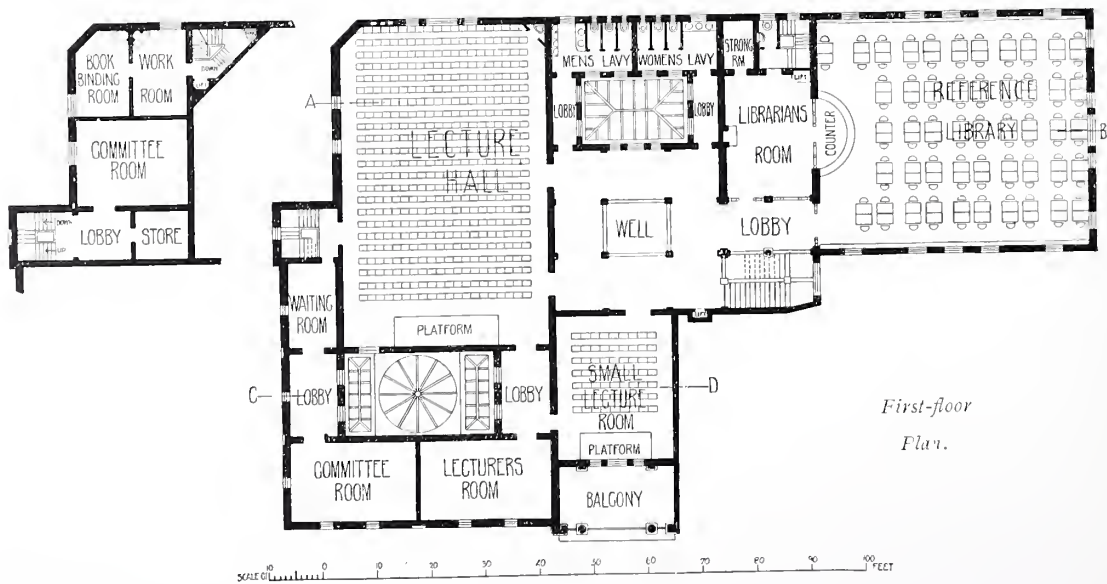


Section C, D.



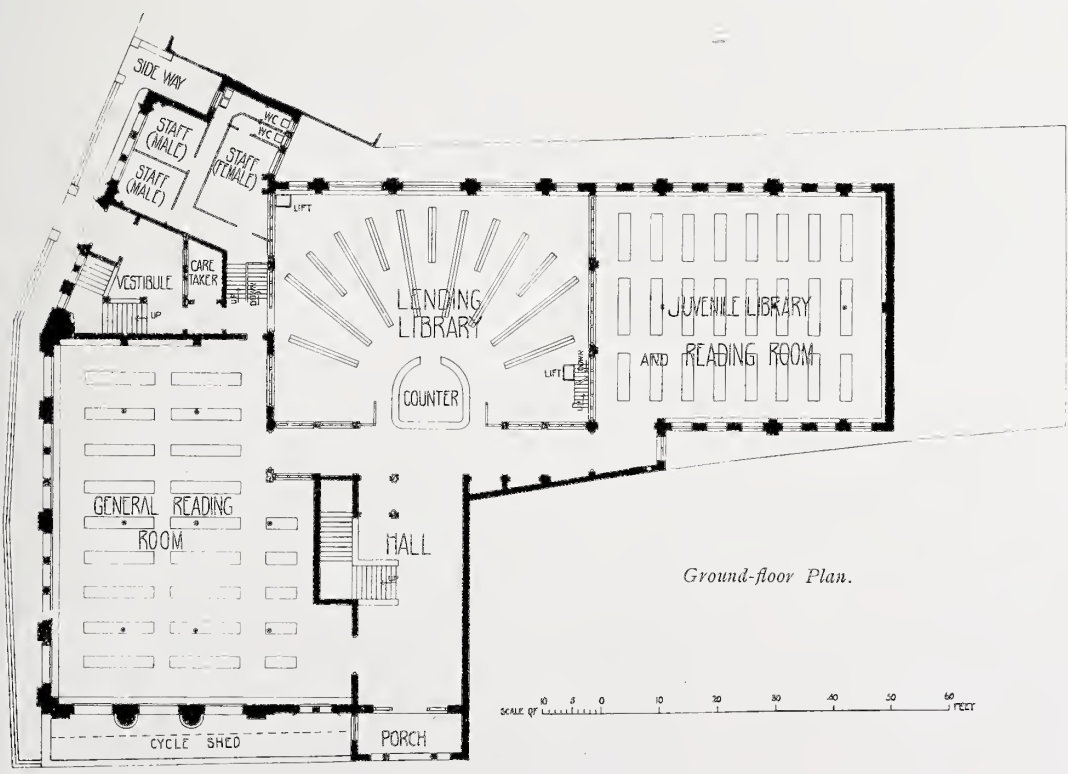
Section A, B.

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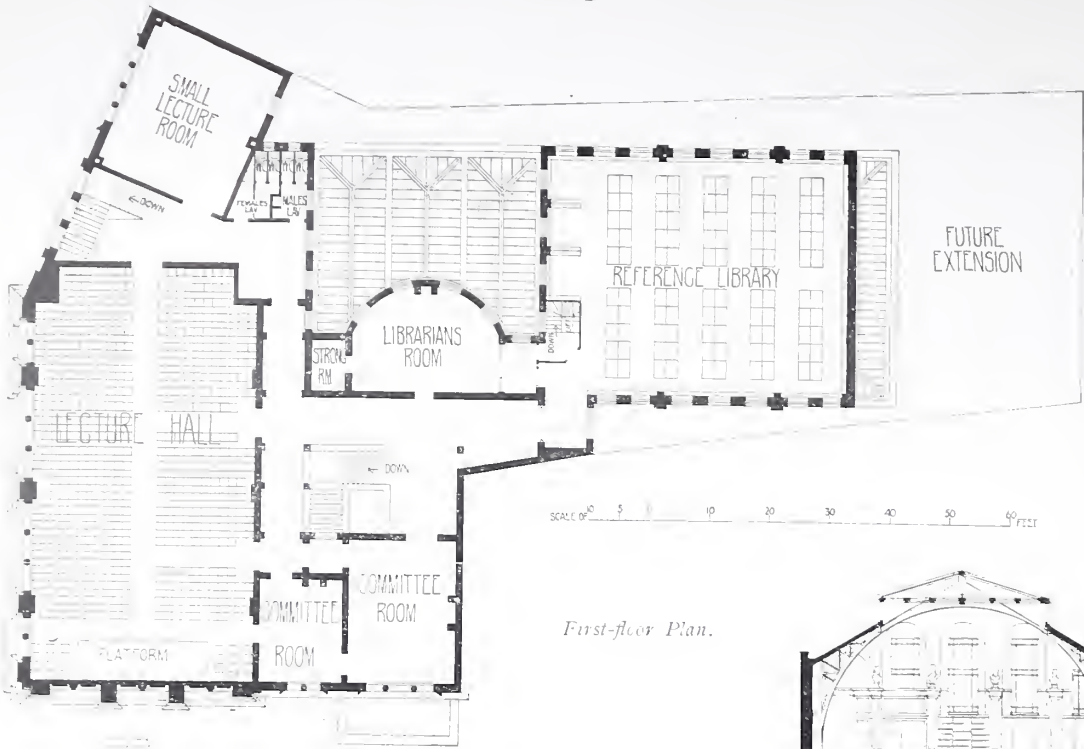
First-floor Plan.

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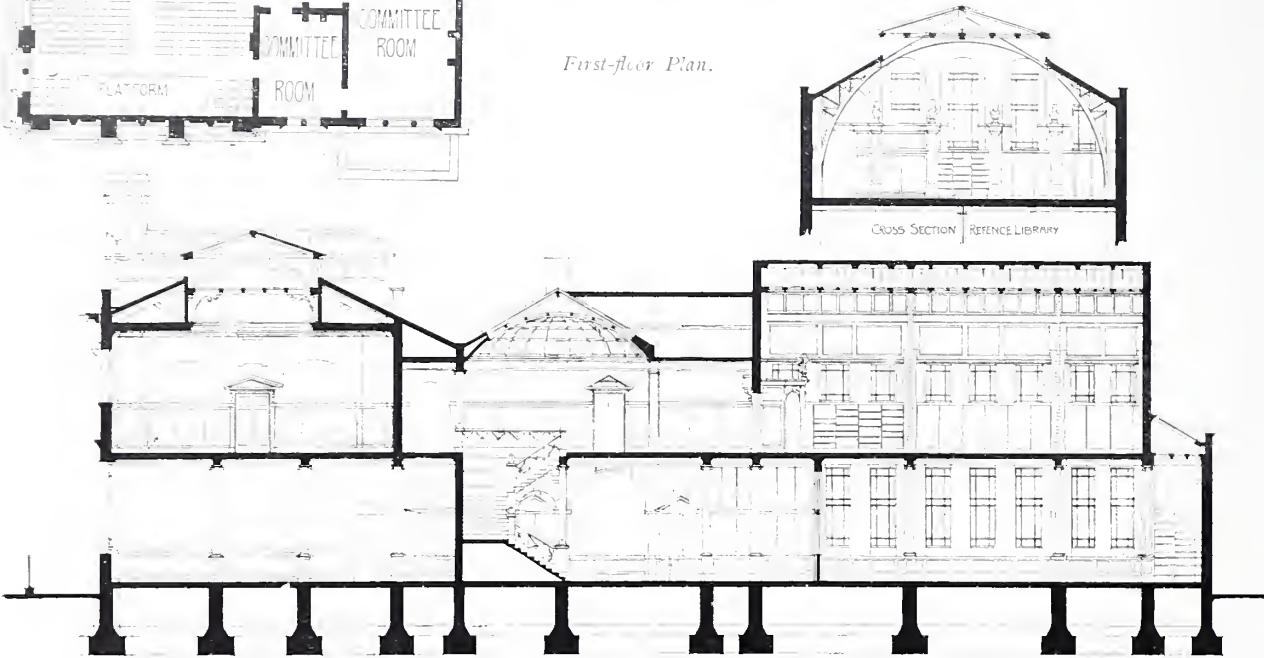


Ground-floor Plan.

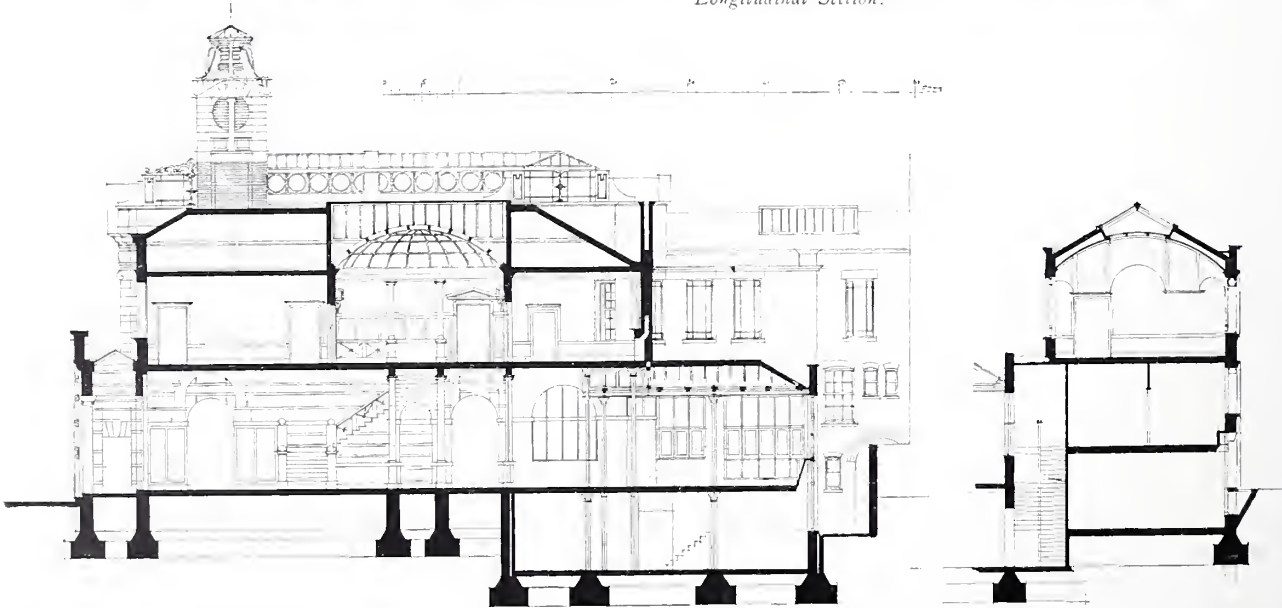
ISLINGTON CENTRAL LIBRARY: THIRD PREMIATED DESIGN, BY PROFESSOR BERESFORD PITE.



First-floor Plan.

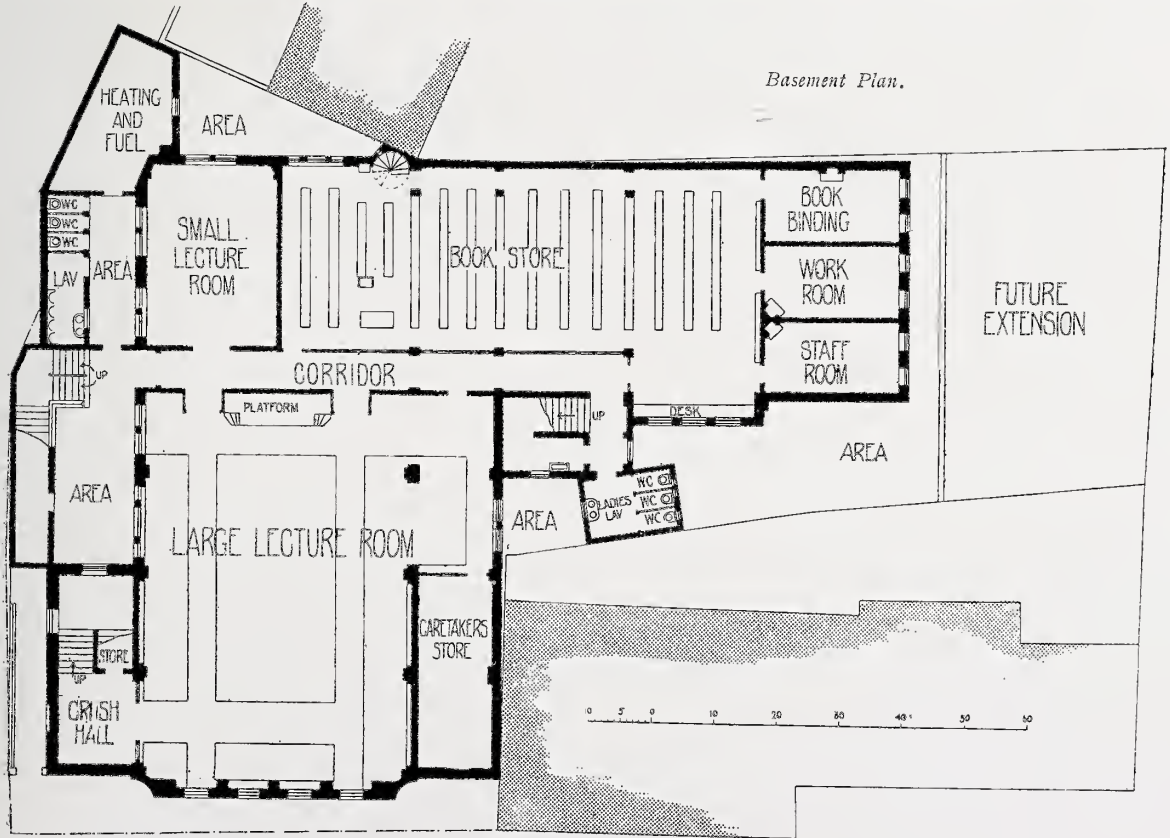


Longitudinal Section.

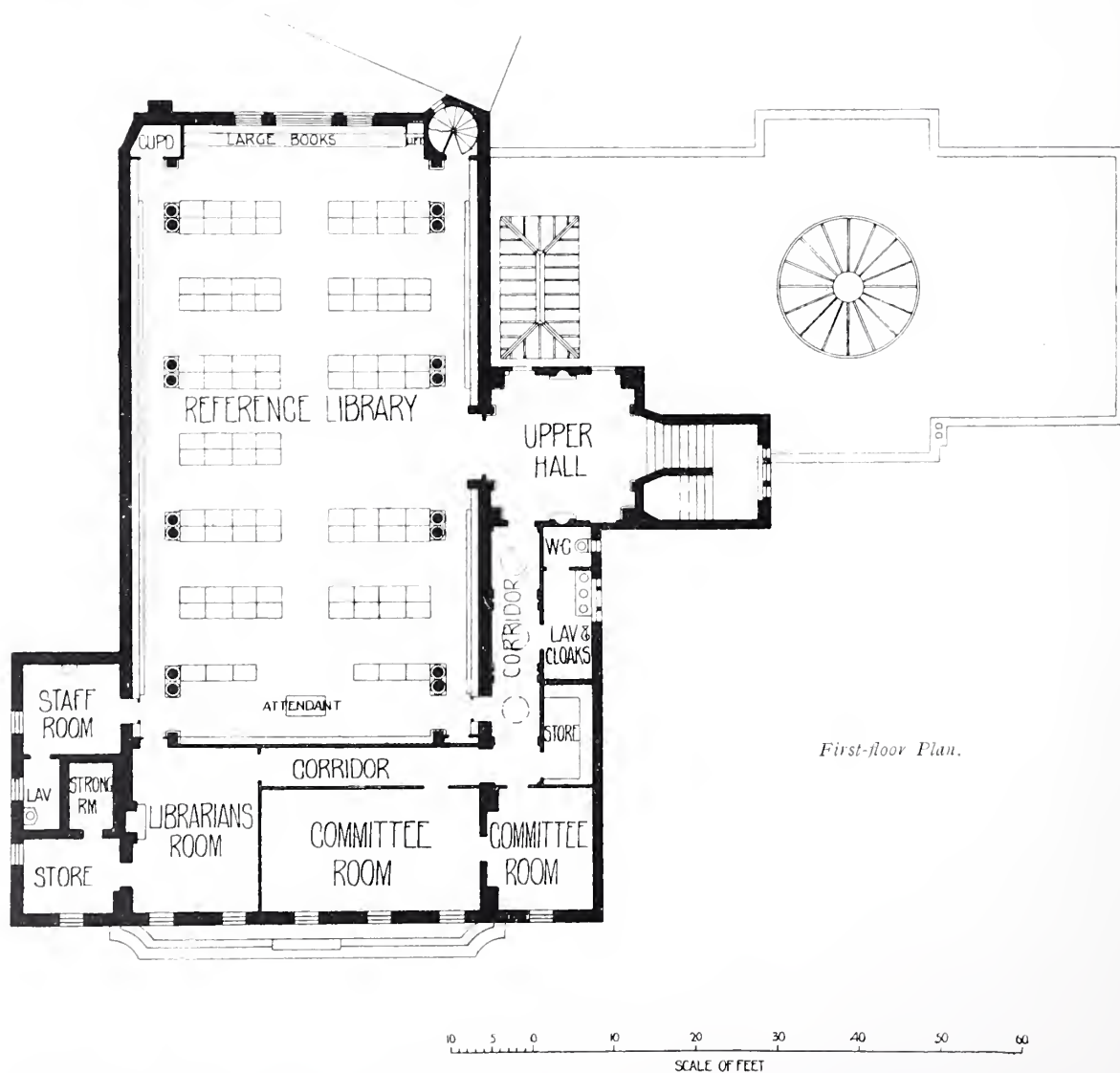
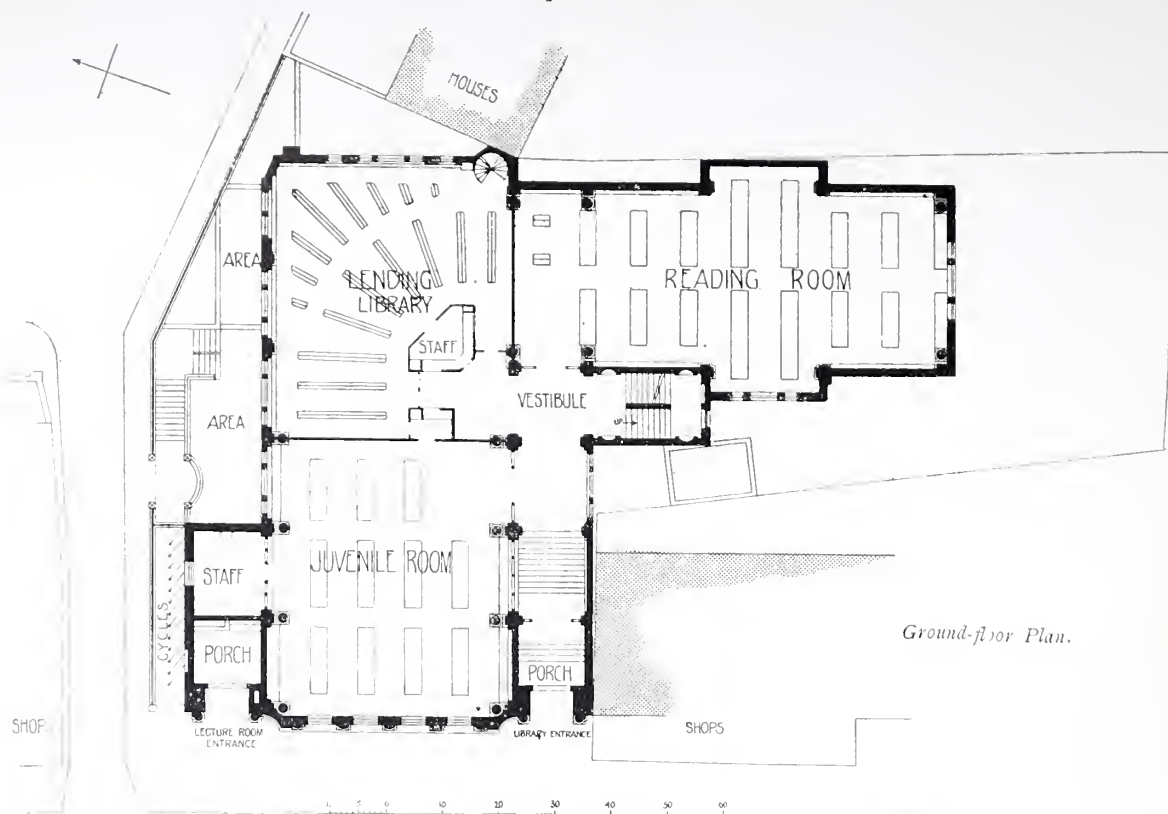


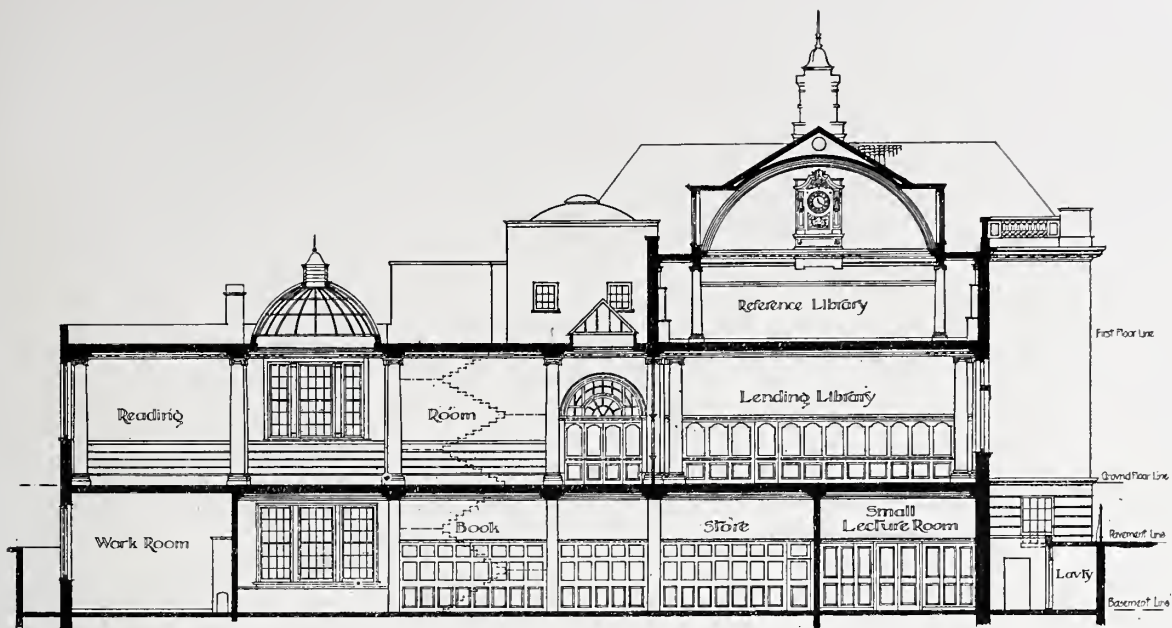
Cross Section.

Section through Small Lecture Room, etc.

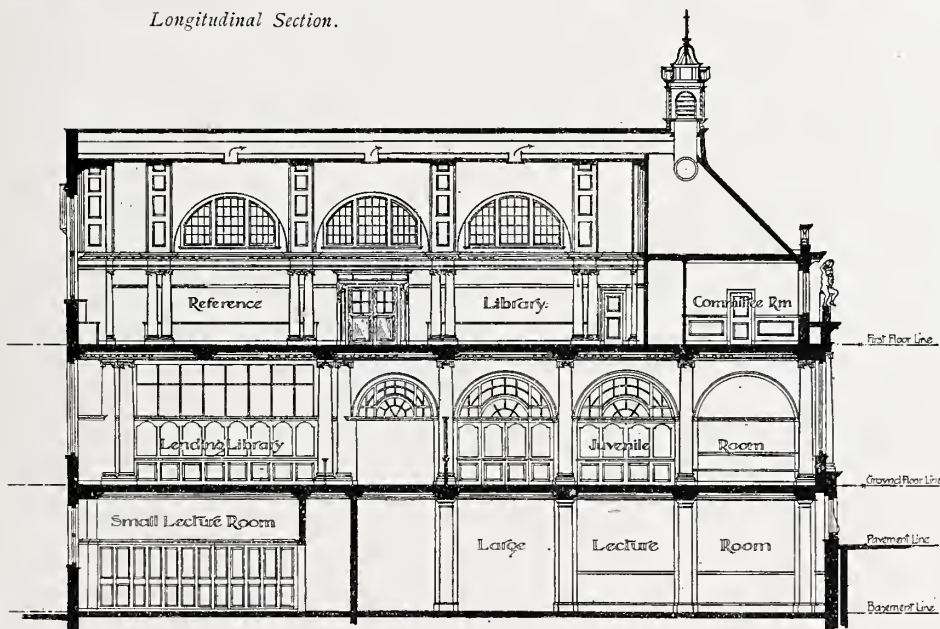


ISLINGTON CENTRAL LIBRARY.
DESIGN BY LEONARD STOKES.

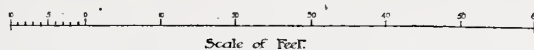




Longitudinal Section.



Cross Section.



ISLINGTON CENTRAL LIBRARY. DESIGN BY LEONARD STOKES.

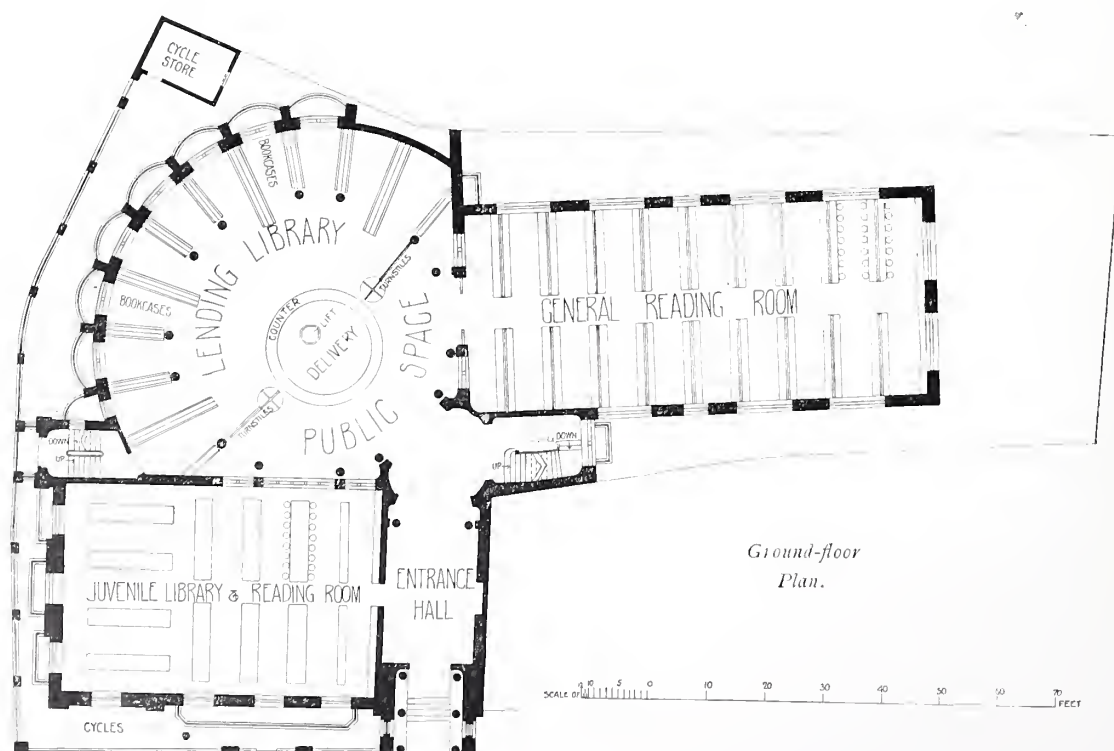
segmental curves? The stone piers space out so irregularly that it would probably be an improvement to omit them, leaving, perhaps, only the two at the main entrance. The planning and internal treatment of this design are both excellent, and if the elevations are improved it would take a high place in library architecture.

The second premiated design by Mr. A. W. S. Cross is a scheme of considerable merit, but lacks the directness and distinction of arrangement which is so evident in the accepted design. The main entrance is planned similarly on the site, and leads into a spacious hall in full view of the attendants in the lending library. The general reading-room is nearest the entrance, and a small enclosure for a porter overlooks both. The

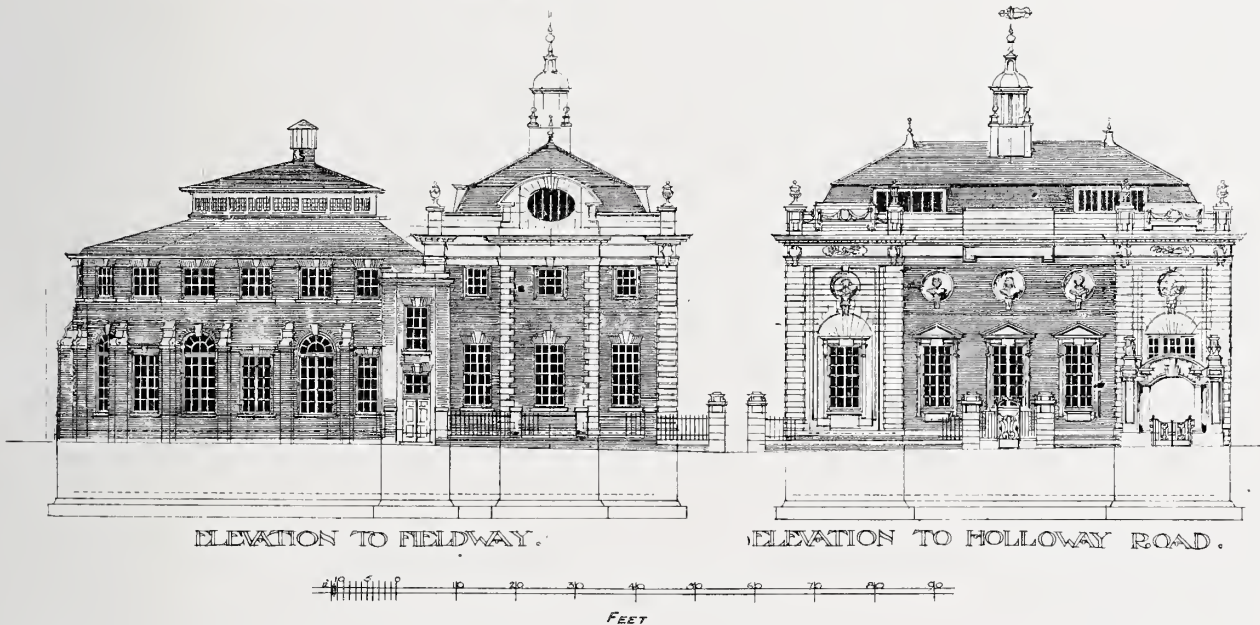
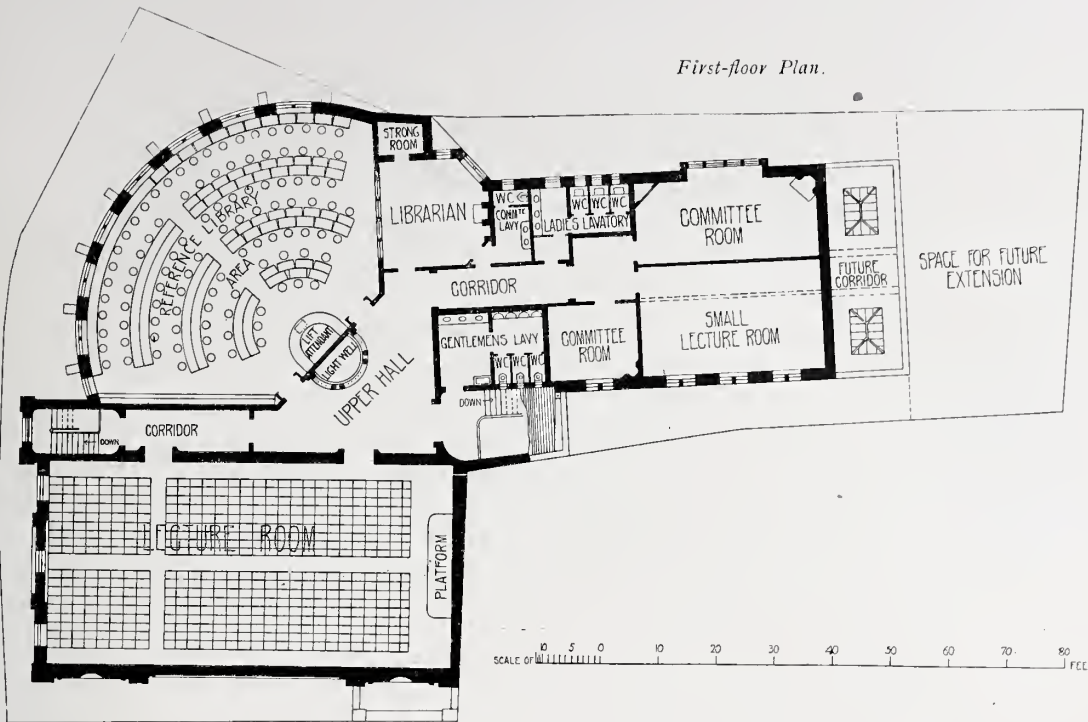
juvenile reading-room is fairly well overlooked from the staff enclosure in the lending library, but its position is too remote from the main entrance.

The lending library is arranged with radiating bookcases and enclosure with top light. It is in easy communication with the staff-rooms on the ground floor and general bookstore in the basement. The "in" and "out" arrangement for the public is not altogether satisfactory, and the room does not seem too well lighted.

A staircase 5 ft. wide leads to a large upper hall from which the lecture-rooms are directly approached, a small colonnaded gallery overlooking the staircase leading to the reference-room. The large lecture-room is well arranged for sub-division into two smaller rooms. It is top-lighted and



ISLINGTON CENTRAL LIBRARY.
DESIGN BY WILLIAM FLOCKHART.



ISLINGTON CENTRAL LIBRARY. DESIGN BY WILLIAM FLOCKHART.

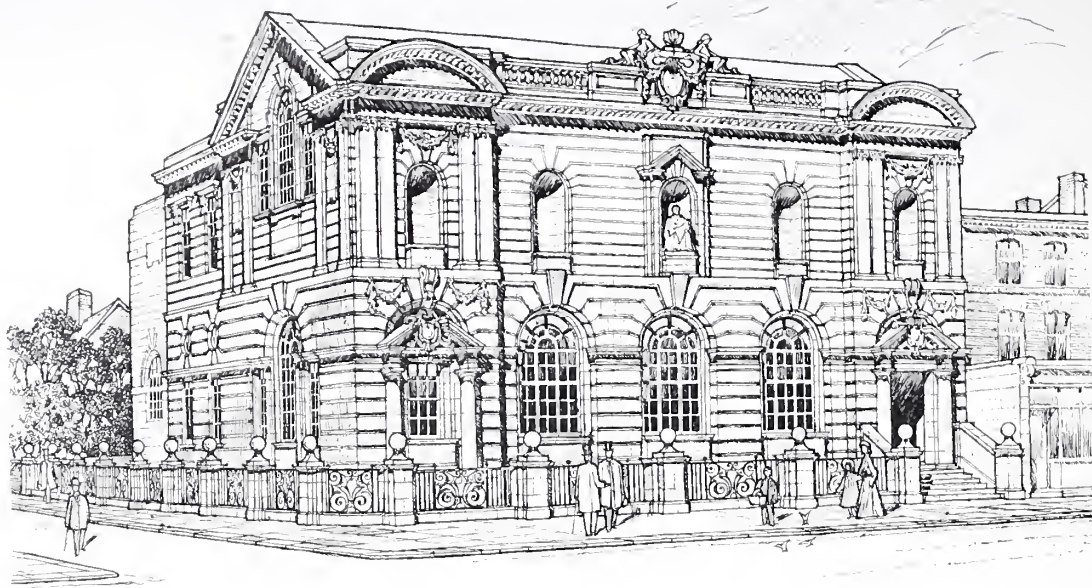
appears somewhat low in height for its size. A secondary staircase giving access to Fieldway serves this together with the committee-rooms. A room for the lecturer is given in connection with it.

The reference-room is in a good position on the site, and is conveniently arranged in easy communication with the librarian's room, opening out of it, and with the bookstore in the basement. The room is well planned for future extension. Lavatories for both sexes are well placed and disconnected from the main parts of the building. A large bookstore is given in the basement in a convenient position. The plan has evidently had a good deal of thought bestowed upon it, but there is waste space in it which should have been

avoided, and the rooms are not particularly happy in their shape.

With regard to the elevations, the principal entrance is marked by a low dome above, but this suggests the centre feature of a completed building, of which the present one is only the half. Again, the large opening forming a balcony above the main entrance does not come happily, cutting as it does into the main cornice with its arch almost filling the space below the pediment. The rest of the façade is dull, but well detailed would probably look better in execution than on paper.

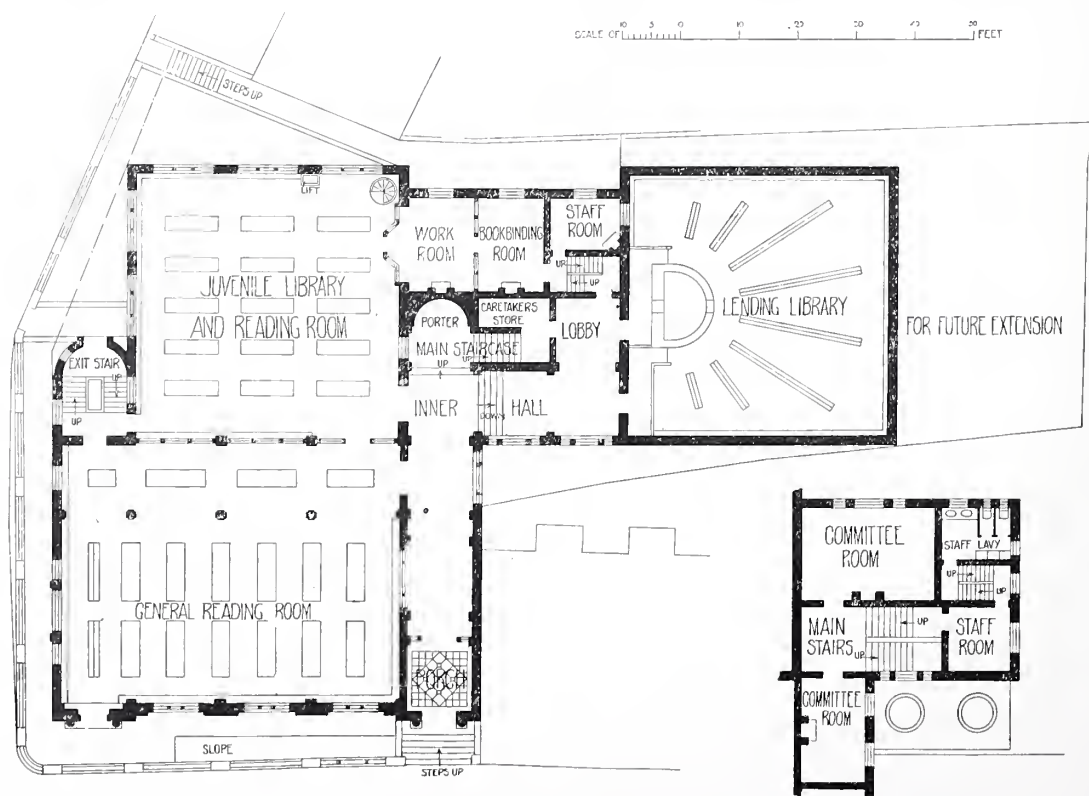
The design by Professor Beresford Pite, placed third, is in the general disposition of the rooms very similar to the second premiated design, the principal entrance, general reading-room, lending



ISLINGTON CENTRAL LIBRARY DESIGN BY MERVYN MACARTNEY.

library, and juvenile-room occupying similar positions on the ground floor. With the exception of the reference-room the first floor is different. The main staircase starts in a very awkward manner immediately on entering the building, and it is also inconveniently arranged in regard to the approach to its large lecture hall on the first floor. The general reading-room is irregular in shape, and the number of thin columns come very awkwardly, and might to advantage be dispensed with. The position and approach to the juvenile-

room is not good, this remark applying also to the approach to the reference-room on the first floor. The centre gangway in the large lecture-room is objectionable, and the two cross ones mean the loss of valuable seating accommodation, and are very inconvenient. The public lavatories for both sexes are not well arranged, the entrances being too close together. Internally the rooms would have a poor appearance, their treatment being more suitable to a show-room for the display of goods in a shop or warehouse. The

ISLINGTON CENTRAL LIBRARY. DESIGN BY MERVYN MACARTNEY.
GROUND FLOOR AND MEZZANINE PLAN.

elevations are designed in a peculiar style, possibly suggested by the charming work of the late Professor Cockerell, but without approaching in any way the quality of his art. The piling up of the lanterns over the large lecture-room, the meaningless columns breaking the main entablature and running up into the pediment, the projecting porch and the unnecessary tower, cannot be said to follow the motto "Design in beauty, etc.," but rather favour "Originality at any price."

The design by Mr. Leonard Stokes as regards the ground floor is arranged on lines very similar to that placed first, but in putting the lecture-rooms in the basement, where they are not adequately lighted, he made a mistake. The reference-room on the first floor is a fine apartment, and is approached by a good staircase from the ground floor. Its position on the site, however, is not a good one for future extension, and it is not conveniently planned as regards the service from the bookstore in the basement, the lift and staircase being at the wrong end of the room both for the librarian and attendant. The circular staircase is not good enough, and seems an apology for a better one. The rooms are of good proportion, and are successfully treated architecturally.

The external elevations, as previously mentioned, are well designed, being quiet and simple, and would look well in execution. In the projecting bay three-quarter columns or pilasters would surely be preferable to the elliptical ones shown, and a string running round under the first floor windows on a line with the cornice over columns would bind it all in together and obviate a possible added appearance of the bay. The turret, being a prominent feature, is poor, and could be greatly improved in design with advantage.

In Mr. Flockhart's design the positions of the rooms on the ground floor are good, but the approach to the general reading-room through the lending library is not satisfactory in a building of this size, and should be avoided. The large space given up to the public in the lending library is useless in the "open access" system, and therefore wasted, except as a means of access to the general reading-room. The staircase leading to the first floor is poor, and the internal appearance of the lean-to roof above it would be unsightly. The lecture-room is well placed and could be subdivided satisfactorily. It has a separate entrance and staircase from Fieldway. The reference library is in the wrong position, and could not be easily extended. A staff staircase should have been arranged communicating with the reference-room, lending library, and bookstore.

The elevation in Holloway Road is quiet and suitable to the character of the building, it is in good taste, and is not overburdened with any apparent effort on the part of its designer to make it appear other than what it is.

Mr. Macartney's is a good architectural plan, and has a very simple arrangement of corridor. The lending library, however, is badly placed, and is too remote from the main entrance. Its position, too, prevents the attendants in the lending library from generally overlooking the whole place. The reference library on the first floor is not in a good position for future extension, and should be in easier communication with the lending library. The large lecture hall would have been better without the columns, but possibly this would have prevented the suitable division into two rooms. The small rooms are grouped together on different floors approached from the main staircase.

The elevations are designed in a quiet style of English character. The upper storey seems small in proportion to the lower, and perhaps it would have been better had the pilasters been omitted. The special attention given to the centre niche and the large shield and figures on the parapet seems unnecessary, and does not add to the appearance of the building architecturally.

Mr. Arthur Keen's plan is very faulty; the positions of the rooms on the ground floor are not good, and the staircase abutting right on to the entrance doorway would be very awkward. The author seems to have made the large lecture-room the feature of his design, and sacrificed the important requirements of the library.

The separate entrance and double staircases are extravagant and unnecessary, and the sub-division into two rooms could not be conveniently arranged. The bookstore in three rooms is not a good working arrangement. The reference library is placed in the proper position and is well approached. The columns in this and other rooms could and should have been avoided.

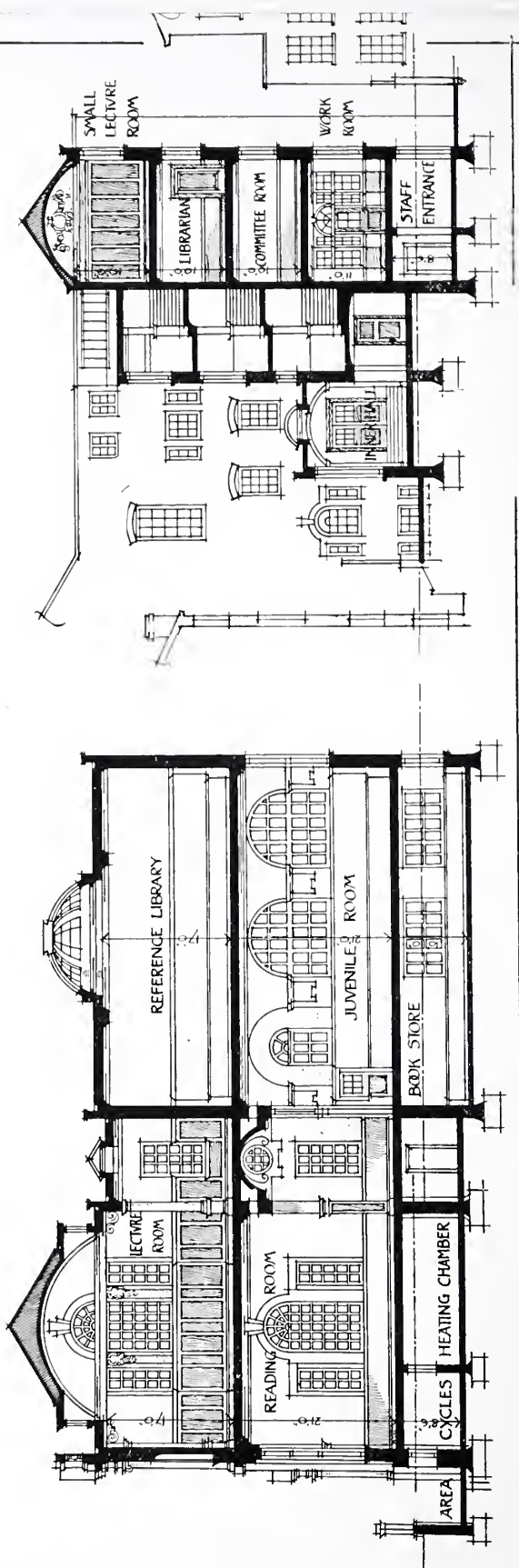
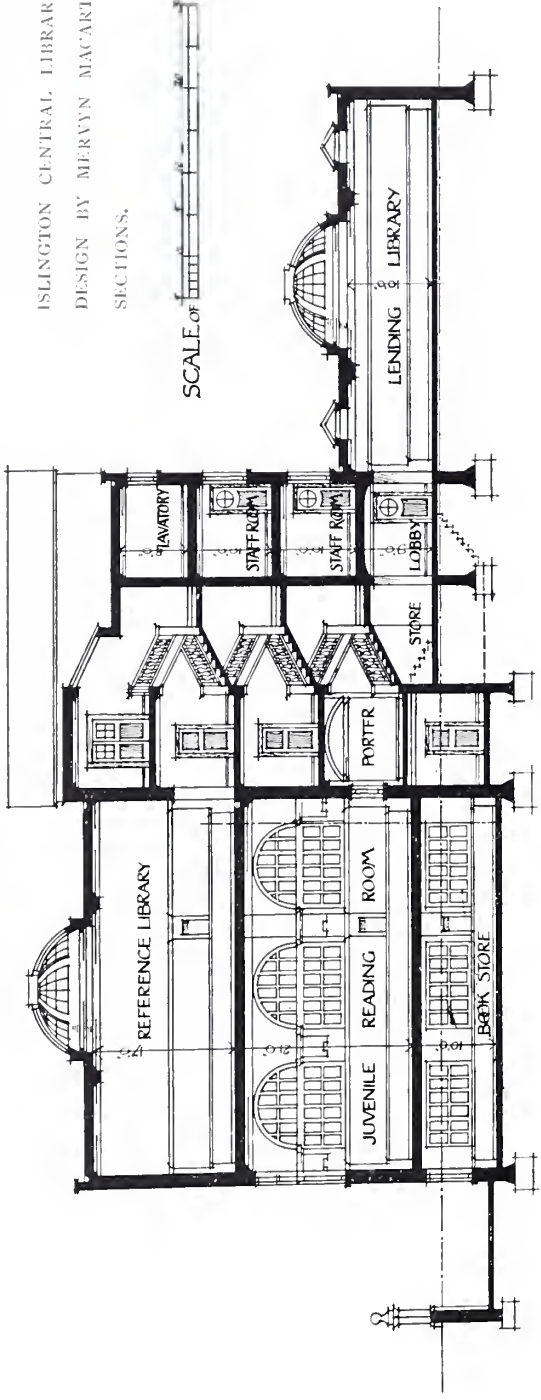
A large gable facing the Holloway Road with a piled-up mass of masonry with peculiar and not particularly happy detail is the prominent feature externally. The building seems to lack the character of a library, being more suggestive of a first-floor chapel with classrooms under.

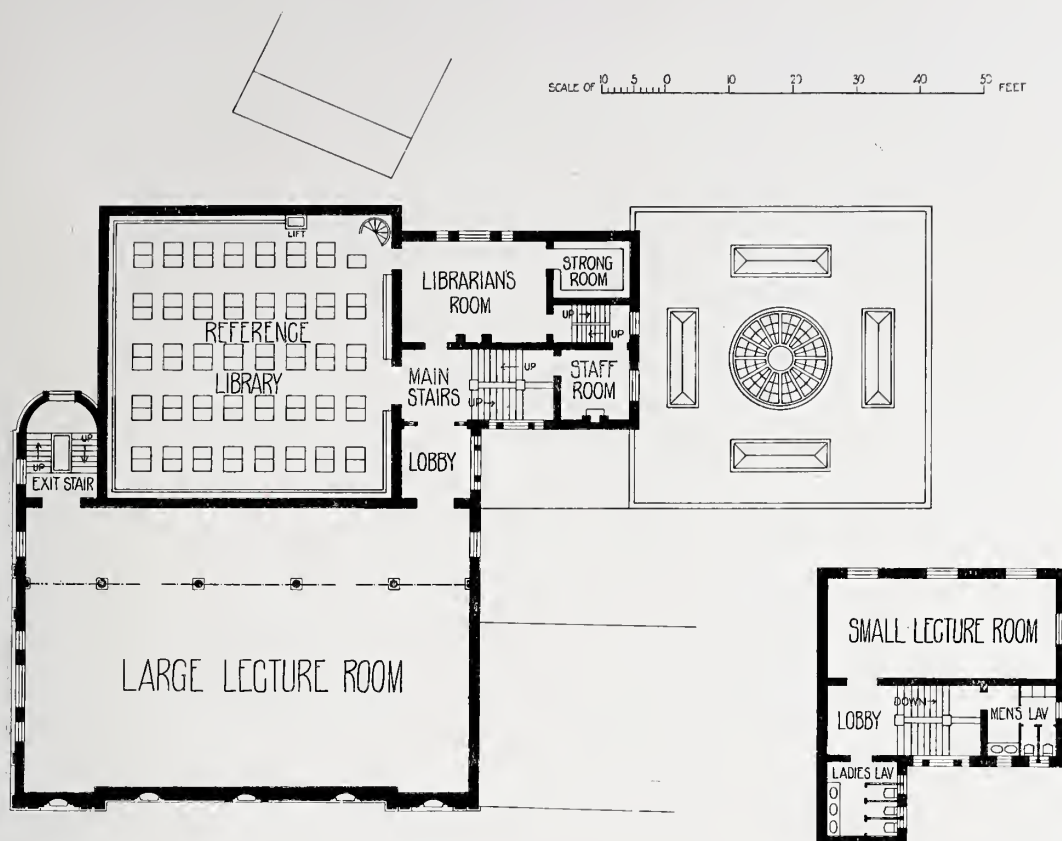
It will be seen that the premiated designs each have the lending library placed between the juvenile and general reading-rooms on the ground floor, and the reference-room occupies a similar position on the first floor in each case. This of course is the right arrangement, and it is interesting to note the variety of planning shown in the solution of the problem.

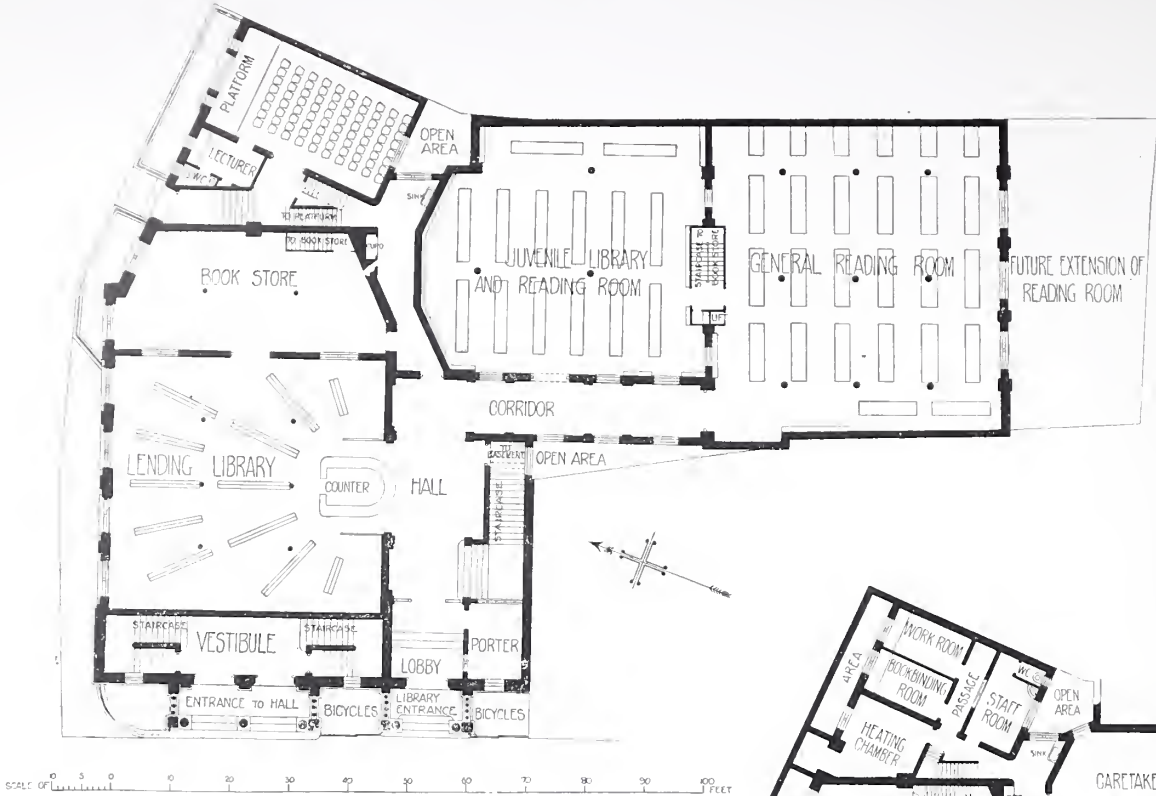
ALFRED COX.

ISLINGTON CENTRAL LIBRARY.
DESIGN BY MERVYN MACARTNEY.
SECTIONS.

SCALE OF FEET.



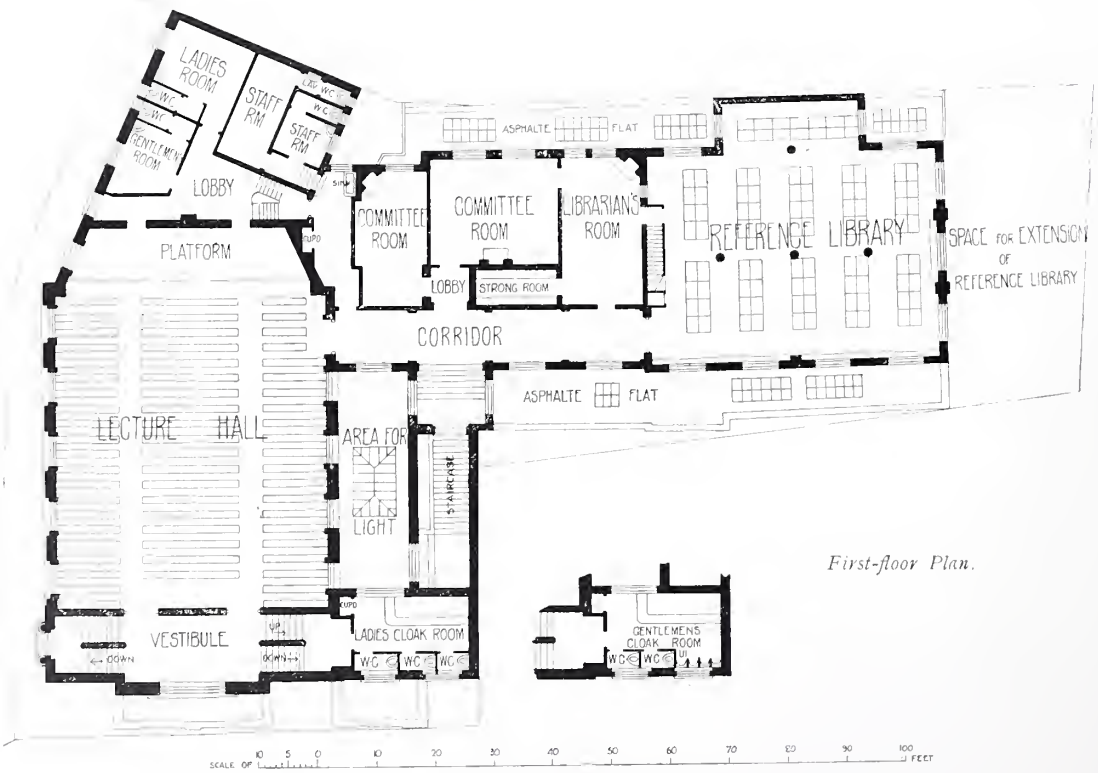




Ground-floor Plan.

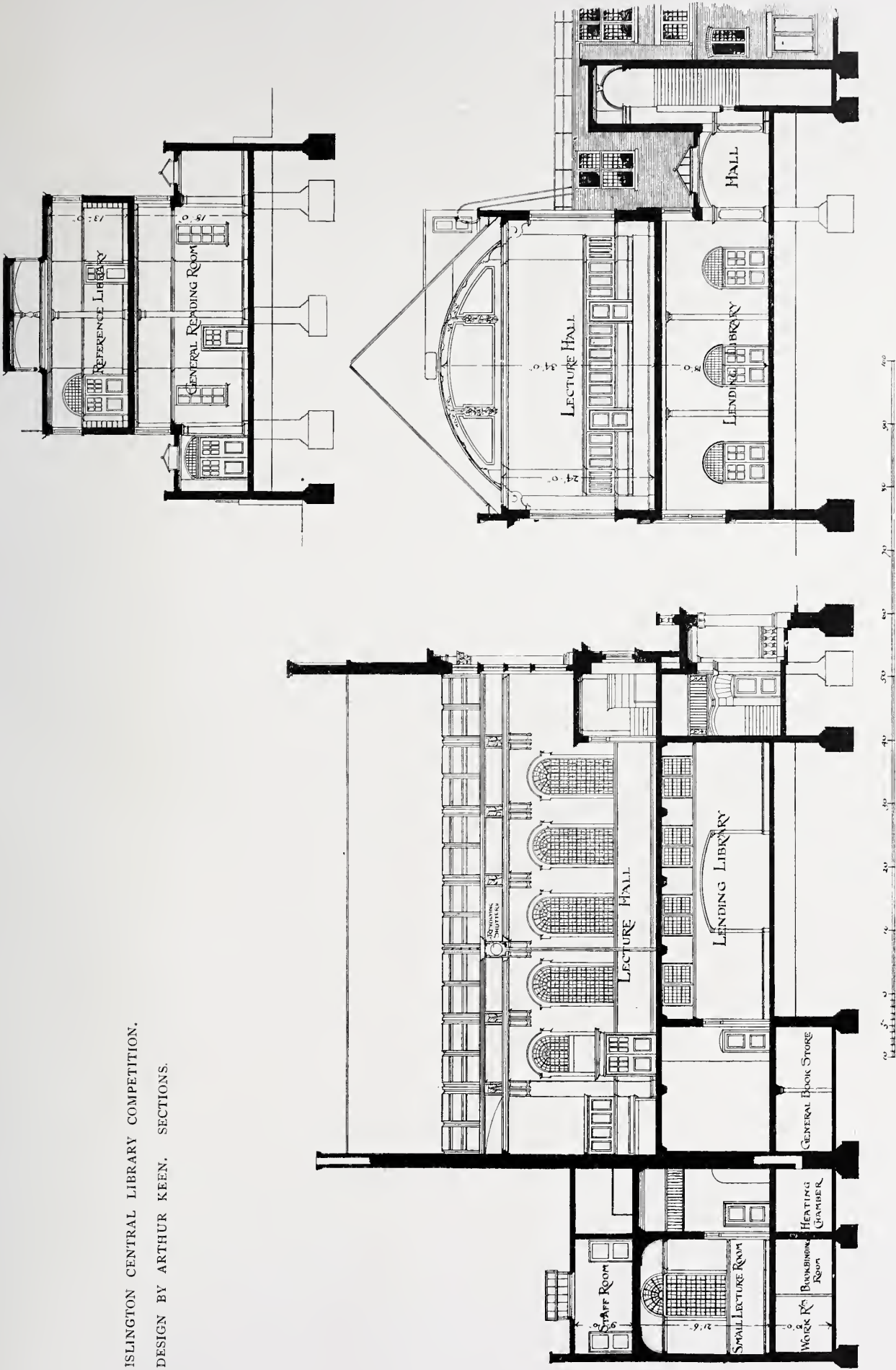


Basement Plan.



First-floor Plan.

ISLINGTON CENTRAL LIBRARY COMPETITION.
DESIGN BY ARTHUR KEEN. SECTIONS.



Notes.

*The Britannia Royal Naval College—The Presidential Address—The Cant of Art—
A Forgotten Font—The Rokeby Velasquez.*

THE BRITANNIA ROYAL NAVAL COLLEGE.—We are desirous to state that Sir Aston Webb's name in sundry advertisements in the November issue was used inadvertently and without his knowledge and consent.

* * * * *

THE presidential address given by Mr. John Belcher, A.R.A., at the recent general meeting of the Royal Institute of British Architects, was altogether admirable. As Sir John Thornycroft afterwards said, "It touches on so many points, and so broadly, that it must arouse thoughts within us as to the propriety of things to which previously our attention had not been called." At the outset Mr. Belcher referred to the death of Mr. Alfred Waterhouse, and showed himself a just critic when he said that Mr. Waterhouse made "the strong reactionary currents of the time subserve the needs of modern domestic architecture." He also spoke of the great advance the Institute had made during the past year, and of the probability of the Institute acquiring a fine freehold site in Portland Place, more suitable to their growing needs.

On the important question of registration, Mr. Belcher said that the committee appointed by the general body had now reported, and even suggested a form of Bill to Parliament; but, owing to diversity of opinion, the Bill was not likely to become law. The Registration Committee had therefore appointed a sub-committee on a wide basis, to formulate a scheme. Equally important was the question of education laid down by the Board of Education. The new Board of Architectural Education, constituted on a broad basis, and containing advisory members from the Royal Academy, Oxford, Cambridge, and London Universities, the Board of Education, the London County Council, and many other important centres, had issued a report approved by the Council and by all the educational bodies interested. A certain definite standard and right method of architectural training had been established, and therefore the Board's certificate would form a valuable asset to the rising architect, though at present it did not seem possible to do more than certify that the men who pass through the Board's curriculum and obtain the certificate were acquainted with the essentials of architecture, and possessed certain definite qualifications. In future,

the possessors of a certificate of the Board of Education would certainly be exempted from some of the Institute examinations, though the final examination for membership, and that in a modified form, might be reserved.

It is in consequence of this new policy in regard to Education that Mr. Belcher was able to make an announcement of very great importance to the Institute and to architecture generally, viz., that twelve leading architects who have held aloof from the Institute owing to their disapproval of its past educational policy have now intimated their willingness to join and help in the work of advancing by every means in their power this most important question. The accession of these new members not only brings some of the best architectural talent within the Institute, but confers on it the right to represent English architects, which it has not hitherto possessed.

Turning to the International Congress to be held in London in July 1906, Mr. Belcher reminded his hearers that in England they had no State subvention, and were consequently thrown upon their own resources. He pleaded, therefore, for aid, both personal and monetary. The President concluded by raising the question of our street architecture in its hygienic aspect, a good opportunity for improving which was presented by the report of the Traffic Commission. In the formation of new thoroughfares and the widening of existing routes, he said, the façades ought to be under proper control from the very first. Again, the extension of the tramway system has driven from the suburbs many of the wealthier class living in suburban houses standing in many acres of land. Their place was taken by the small houses of the speculative builder crowded into the minimum space allowed by the Building Act, and in this way the supply of air to the central parts of towns was being blocked by a zone of overbuilt suburbs, and the danger in case of an epidemic increased most seriously. The laying-out of avenues and thoroughfares was not entirely a matter for the engineer and borough surveyor. There were artistic possibilities to be taken into the public service, such as have been adopted in some foreign cities with admirable results. The authorities ought to be awakened to the commercial aspect of these matters. "Art pays when properly handled." "I believe," said Mr. Belcher, "there is a better time coming. It is noteworthy,

as one passes through the country, what an increasingly large proportion of the smaller class of houses have evidently been designed by architects. The builder is discovering that an architect's design is not an expensive and unnecessary luxury, but that the initial outlay is more than repaid, if not in the actual building of the house—and this often happens—at any rate in the improved letting which results."

* * * * *

THERE was a cant of art some years ago when manufacturers and middlemen found that the addition of the word "Art" to the names of their wares assisted their acceptance by the unthinking public, though it was soon recognised as a danger signal by those truly artistic. It served its commercial purpose for a time, but its day has gone by. The cant of the present day prefers the blessed word "Handicraft," and specially those forms in which designer and executant are supposed to be one and the same. The capacity for design, however, depends upon one set of capabilities, and the power of execution upon quite another; and though the two powers sometimes meet in the same personality, when great and equal in strength producing works of genius, it is generally the case that one or other is in excess, producing the designer or the handicraftsman according as one or other preponderates. Instances might be easily given from the fine arts (where the differences are very evident) of those in whom the gifts of design have far outstripped the power of execution, and conversely of those whose execution was splendid and most dexterous, but the sense of beauty, form, and composition excessively weak.

A section of art reformers thought it saw salvation in the invariable conjunction of artist and craftsman in the same personality, and having succeeded in their own persons in uniting the two in their friends' opinions, and found the process profitable, set to work with great philanthropy to improve English art by trying to teach the handicraftsman the incommunicable qualities of fine design. The result has of course been the development of mannerism—in which the halting intelligence of the average man always takes refuge when forced to follow the flight of ideas beyond his comprehension, and it is questionable whether there is any real improvement in the art feeling of the country, though the particular form of design which is fashionable may have changed.

The leaders of the movement have, however, so far belied their principle, viz., that the craftsman should execute his own designs, that many of them have now large workshops in which many works of varied kinds are carried out; that is to

say, that their enterprises are now indistinguishable in principle from the manufacturers' works, the revolt against which was the object of the movement—except that the prices charged are higher. It may be said that the designs are made by the one mind and carried out under its superintendence—and that one acknowledges to be a thoroughly wholesome manner of procedure—but what becomes in that case of the theory that the craftsman and the designer should be one and indivisible? It is the writer's belief that in all ages there have usually been at least two minds, the designer's and the executant's, concentrated upon all important and successful pieces of work. If the craftsman was also the designer for any considerable period, there was little progress in design though much in technical dexterity, for he required the designer's influence to keep him from difficult extravagances.

It is evident that the master of a number of workmen must find work for them, and that the claim of such a man to execute his designs with his own hands must be baseless. Why does he pay them if not to work out his designs? But the reputation serves well enough to attract commissions, and—what is even more important—to keep them out of the hands of those whom the designer believes (probably quite honestly) will not assist the progress of art as his own works must do. In fact, as with the procedure of the great trusts, it is only a question of time before the competitors will be starved out and leave the field quite free, which will no doubt be much to the advantage of English art as well as to their own. But there are also those who go further still. A great architect who has now joined the majority once told the writer the following amusing anecdote. Certain work was being done for him in a workshop in London, which was on the first floor, and one day as he descended the stairs a man came out of a workshop on the ground floor and asked him to come in and see what he was doing. It was joinery, and the man was doing it well. The drawings were shown him, and it was evident that the joiner's technical knowledge had been a good deal relied on by the designer. He saw this work in progress on at least as many as three visits, and never saw anyone else in the shop. One day he received a copy of a local paper with a paragraph scored in red. This described the work which he had seen carried out by the joiner, and stated that it was designed *and executed* by someone else, whose name was well known to my informant. Surely this is a very offensive form of the cant of art!

I must not be supposed to tilt at the genuine designer and craftsman, whether solitary or in groups of two or three, who really do what they

profess to do. One has the greatest sympathy with their aims if not always with their results. It was from among such that the men arose who cheerfully spent the greater part of their lives in working on one great work, men like Nicolo Lionello, whose one known work is the beautiful Palazzo Comunale at Udine, which, however, is quite enough to write his name large on the roll of fame.

S. S. G.

A CORRESPONDENT with antiquarian tendencies, who has spent recently a few weeks in Wensleydale, Yorkshire, has lighted unexpectedly upon an old font which seems likely to have been the one that was used seven hundred years ago at Jervaulx Abbey. Our readers who happen to be ecclesiologists or general antiquaries will be interested to know that this relic, which has been



FONT, SAID TO HAVE BELONGED TO
JERVAULX ABBEY.

forgotten for so many years by all but its present owner, now stands in the garden attached to the residence of Mrs. Greenwood, of Thornton Rust, a remote moorland hamlet which occupies part of a long scar of limestone high up on the southern slope of Wensleydale.

Our correspondent was informed by Mrs. Greenwood, who kindly permitted him to photograph the font, that when Jervaulx Abbey was demolished in the year 1539, or after the sale of materials during the early part of the eighteenth century, some of the carved oak, a number of tiles, this font, and other church furniture, were taken to Aysgarth church, which is about a dozen miles from the site of the abbey; and visitors to Aysgarth will remember that the rood screen, the pride of the church, is described as having come from Jervaulx.¹ However, during the last restoration but one of the

church at Aysgarth, some of the old materials were sold, and Mrs. Greenwood's father, Mr. Chapman, bought some of the carved oak and this font and removed them to his residence three miles away at Thornton Rust; and though the oak no longer remains there the font is still cherished by his daughter.

Jervaulx Abbey was built in the year 1156 by the Cistercians, and the shape and general style of this font indicate an early origin. At the dissolution of the monasteries Jervaulx Abbey received even more than the usual drastic treatment. The notorious Richard Bellasys was commissioned to "dispatch" it, and when he had wreaked his ill-will upon the fabric, the local farmers proceeded to dig up the stone coffins for swine troughs, scattering to the winds their contents of bones and wrappings. Fences, farm-houses, out-buildings were erected with plunder from the abbey, drains were made with its wrought stones, and even the roads were mended with material from the same source, so that it was no uncommon thing for the wayfarers of that day to see pieces of carved and inscribed stone lying in the deep ruts of the hitherto neglected lanes. So thorough indeed was the wanton destruction that it is surprising to find that the font, which has evidently received some hard knocks, has still survived when so much else has perished.

* * * * *

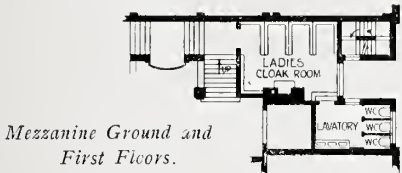
A VELASQUEZ—the Rokeby "Venus"—will shortly be in the market, and a considerable controversy has arisen over it in *The Times*. It is galling, of course, that any example by this master, whether good, bad, or indifferent, should leave England to be added to the picture gallery of an American millionaire; and the National Art Collections Society are endeavouring to raise funds to purchase it for the nation. This movement is being backed by Sir Martin Conway, Mr. G. D. Leslie, R.A., and other influential men; but Lord Ronald Sutherland Gower, himself a member of the National Art Collections Society, decries both the painting and the proposal for its purchase, pointing a moral from the recent purchase of a somewhat doubtful Titian for £40,000. Mr. D. S. MacColl, in *The Saturday Review*, favours its purchase, and sighs for the days when it will be accounted as noble to secure an old master for the nation as it is to bring back the "ashes" of sport. Meanwhile the pretty quarrel continues, and with "Doctors disagreeing" it is unlikely that the "Venus" will remain to adorn the walls of the National Gallery.

¹ Later writers say it was made for the church at Aysgarth.

Current Architecture.

SCHOOL OF ART, HULL.—The design of this building is intended to express the purpose for which it is built without undue elaboration, and to present a quiet and dignified appearance from the various points of view from which it can be seen. The lighting of such a building is of exceptional importance, and it is believed that efficient light has been obtained in all parts of the building. The entrance is placed in the centre of the south front, and opens into a cross-shaped hall, with the staircase on the right leading to the upper floors. The ground floor contains the modelling, elementary, and exhibition rooms,

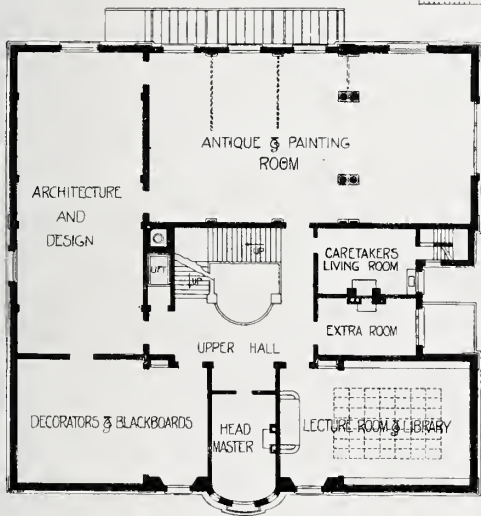
while rooms are provided on the first floor for architecture, decorators, antique, painting, lecture room, and library, and the life room is placed on the second floor. The various class-rooms communicate as far as desirable with each other, so that the master may pass through and thus give more complete supervision. The general building contractors are Messrs. Hockney & Liggins, Hull. Mr. Fehr, of London, executed the sculptor's work, and the Bromsgrove Guild of Applied Arts the mosaic work from cartoons by Mr. Alfred Garth Jones, London. The architects for the work are Messrs. Lanchester & Rickards.



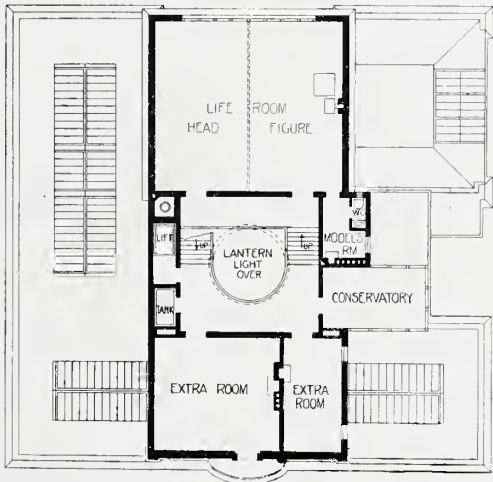
Mezzanine Ground and First Floors.



Mezzanine First and Second Floors.

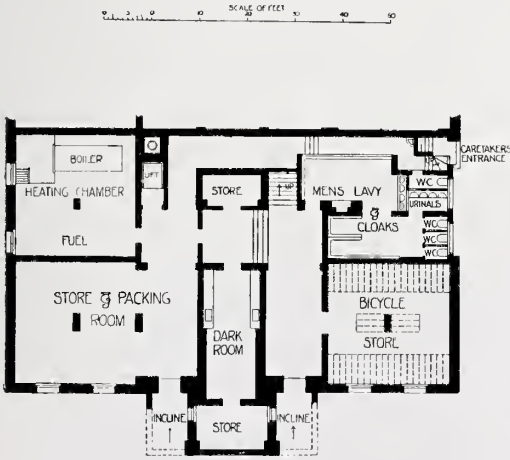


First Floor.

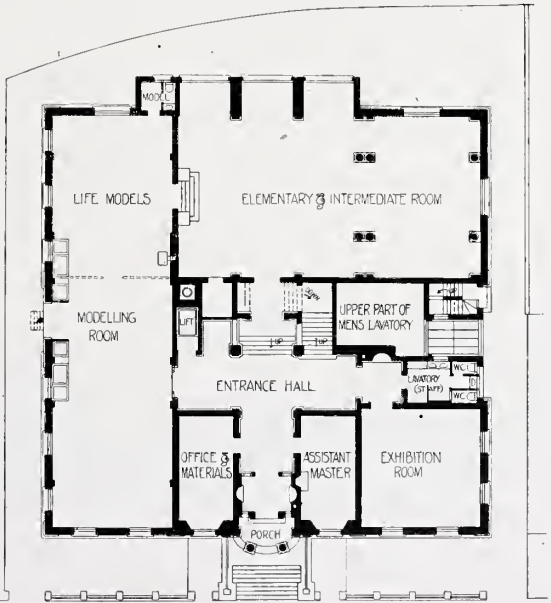


Second Floor.

THE HULL SCHOOL OF ART. PLANS.
LANCHESTER AND RICKARDS, ARCHITECTS.



Basement.



Ground Floor.

*Photo: Bedford Lemere.*

THE HULL SCHOOL OF ART. CENTRE BAY.
LANCHESTER AND RICKARDS, ARCHITECTS.



Photo: Bedford Lemere.

HULL SCHOOL OF ART. DETAIL OF ENTRANCE.
LANCHESTER AND RICKARDS, ARCHITECTS.

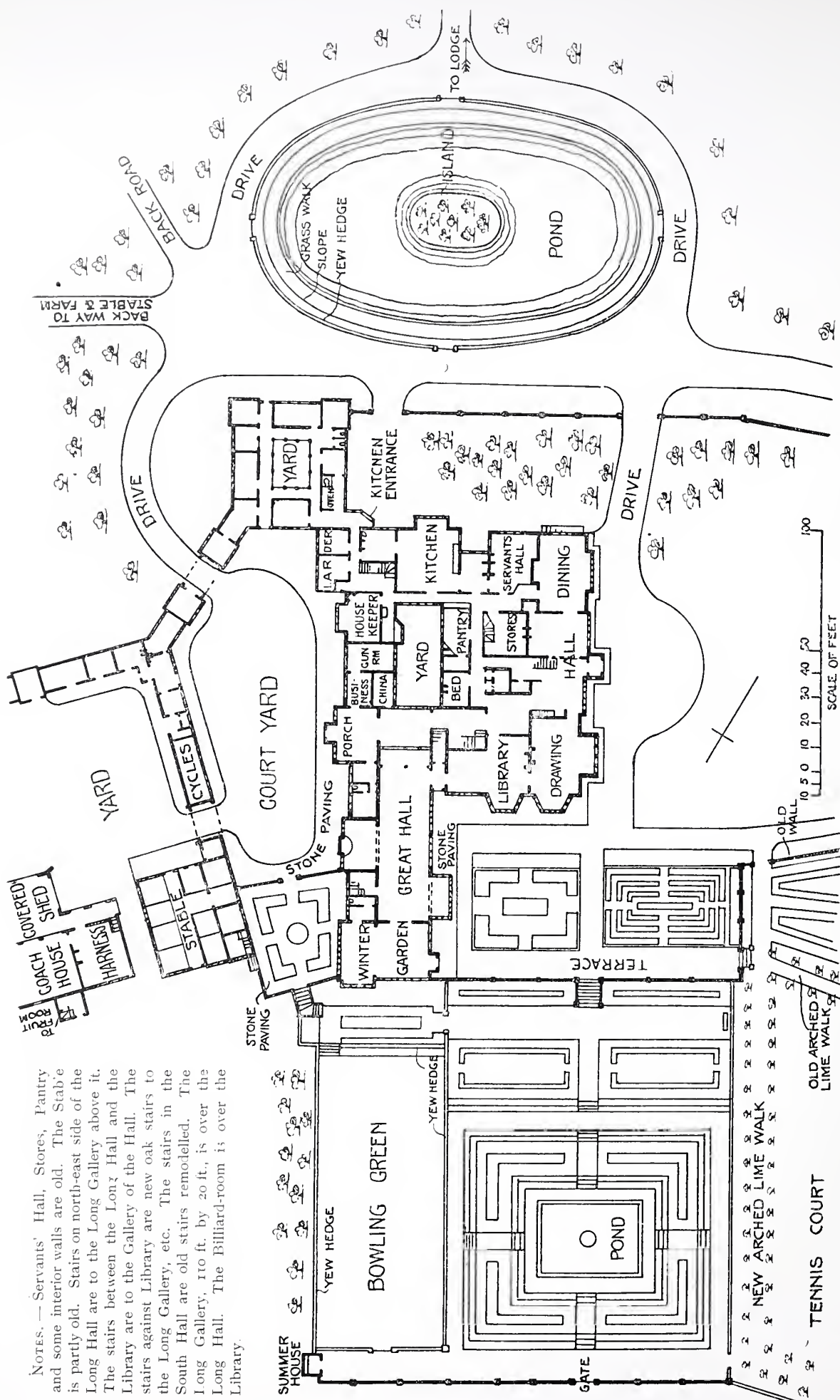


HULL SCHOOL OF ART, GENERAL VIEW.
LANCHESTER AND RICKARDS, ARCHITECTS.

Photo: Bedford Lemere.



FANHAMS HALL, WARE. VIEW FROM THE GARDEN BELOW THE TERRACE.
W. WOOD BETHELL, ARCHITECT.



FANHAMS HALL, WARE. PLAN. W. WOOD BETHELL, ARCHITECT.



FANHAMS HALL, WARE. VIEW FROM THE FRONT GARDEN.
W. WOOD BETHELL, ARCHITECT.



FANHAMS HALL, WARE. THE LONG HALL, LOOKING TOWARDS WINTER GARDEN.
W. WOOD BETHELL, ARCHITECT.



Fireplace in the Long Hall.



View from the Paved Garden.

FANHAMS HALL, WARE. W. WOOD BETHELL, ARCHITECT.



The Lodge.



View from the Drive.

FANHAMS HALL, WARE. W. WOOD BETHELL, ARCHITECT.



Archway from Courtyard to Stable.



The Long Hall, showing the Gallery.

FANHAMS HALL, WARE. W. WOOD BETHELL, ARCHITECT.



FANHAMS HALL, WARE. OAK STAIRCASE TO LONG GALLERY AND BILLIARD ROOM.
W. WOOD BETHELL, ARCHITECT.



Door in Kitchen Wing.



The Library.

FANHANS HALL, WARE. W. WOOD BETHELL, ARCHITECT.

*Photo: E. Dockree.*

HENLEY TOWN HALL.

HENRY T. HARE, ARCHITECT.



Photo: E. Dockree.

HENLEY TOWN HALL. UPPER HALL.
HENRY T. HARE, ARCHITECT.



Photo: E. Dockree.

HENLEY TOWN HALL, COURT AND COUNCIL CHAMBER.
HENRY T. HARE, ARCHITECT.

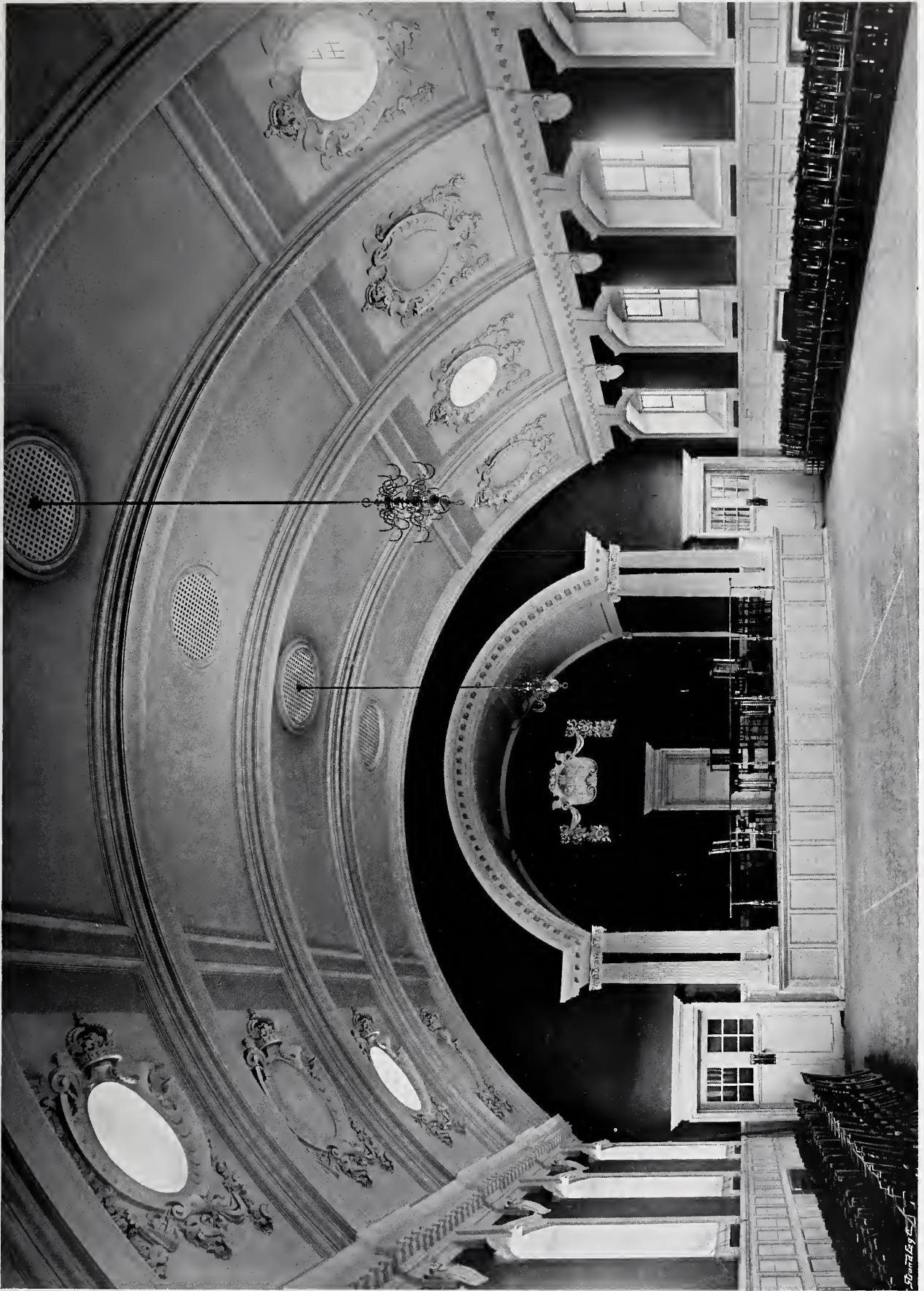
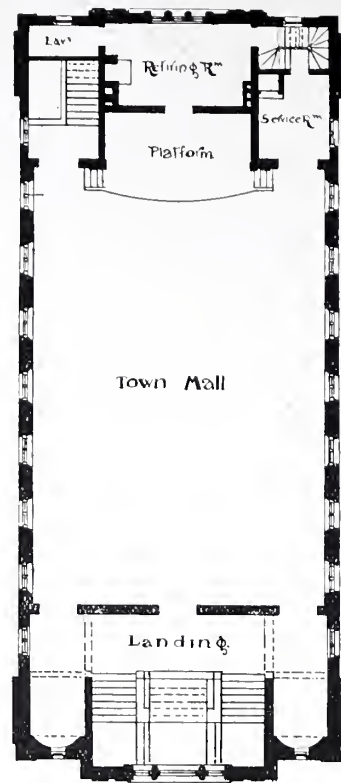
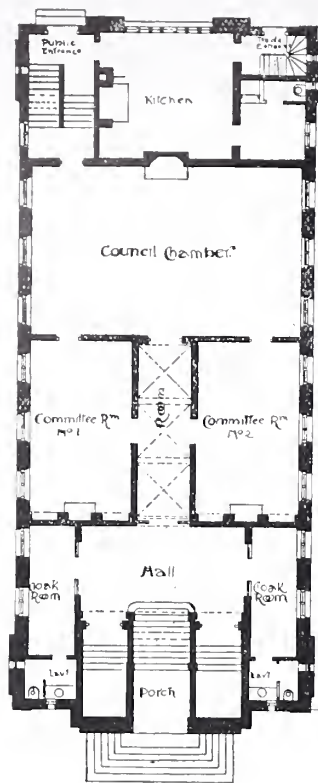


Photo: E. Dockree.

HENLEY TOWN HALL. HENRY T. HARE, ARCHITECT.



HENLEY TOWN HALL. GROUND AND FIRST FLOOR PLANS.
HENRY T. HARE, ARCHITECT.

FANHAMS HALL, WARE.—During the last ten years this house has been altered and added to bit by bit, and only small portions of the old exterior are now visible. The walls are built of brick covered with rough-cast with Stancliffe stone dressings from the Stancliffe Estates Quarry, Darley Dale. The roofs are covered with red tiles. All the windows are glazed with leaded lights. The principal rooms are panelled. Some of the rooms have elaborate fibrous plaster ceilings by Mr. Lawrence L. Turner, who also did the inlaid Italian walnut panelling in the drawing-room and the oak panelling in the gallery, also all the wood and stone carving. The long hall, winter garden, and other rooms show oak beams and joists with plaster between. The woodwork generally throughout the house is oak. The hinges, door latches, and other fittings, also several of the grates, are of wrought iron, and most of them have been made from the architect's designs. The courtyard, stabling, lodge, drives, terraces, etc., have also been added. Mr. Thos. Hunt, of Ware, was the contractor for the first additions, and Messrs. Foster & Dicksee, of Rugby, for the latter. The leaded glazing was executed by Messrs. W. James & Co., of Kentish Town, London, with their special strong lead comes and water-tight cement process. The fittings to the casements are of special design from an old pattern. Messrs. Wenham & Waters, of Croydon, installed the heating apparatus and hot-water service, and

also executed the sanitary plumbing and cold-water mains. Messrs. Hobbs & Co., of London, carried out the wrought-iron work; the stained glass was executed by Mr. James Egan, of London; and Messrs. Perry & Co., of London, supplied the electric bells. Mr. W. Wood Bethell was the architect.

HENLEY TOWN HALL. — The building is built of red facing-bricks with Bath stone dressings, and the roof covered with Colley-Weston stone slates. The floors are of fireproof construction, and the council chamber is panelled in wainscot. In the lower ground floor are situated offices for the surveyor and surveyor's clerks, the town sergeant, strongroom, stores, two spare offices, lavatories, and a drill hall, besides coal cellar and heating chamber. In the mezzanine floor, between the ground and first floors, are the caretaker's quarters, consisting of kitchen, scullery, pantry, and store, and there are three bedrooms over in the second floor. The town hall roof is 40 ft. in span, and is constructed with six steel principals, mansard-shaped outside or extrados, and semicircular on intrados. Each principal was made in three sections for convenience of transit. The stained-glass window on the main staircase was by Mr. Henry Holiday. The general contractor was Mr. McCarthy Fitt, of Reading. Mr. H. T. Hare was the architect.



HENLEY TOWN HALL. DETAIL OF MAIN ENTRANCE.
HENRY T. HARE, ARCHITECT.

Pho'o : E. Dockree.

A Sketch of Irish Ecclesiastical Architecture.

IV.—ROUND TOWERS.—PART II.

AN important confirmation of the view which connects the introduction of these Towers with the Danish invasions is supplied by a map appended to Lord Dunraven's *Notes on Irish Architecture*. Here the chief lines of Danish raids before the tenth century, upon the sea coasts and islands, on Lough Neagh, and along the Shannon with its chain of lakes, are marked, and with them the position of Round Towers. There are, it is true, Round Towers elsewhere—prudence might dictate the building of such defences in places where the invaders had not yet come; there were also the 'ordinary risks' of the frequent wars among the Irish themselves; and the Round Tower became a specially Irish institution. But on the whole the coincidence shown in the map between the lines of Danish invasion and the position of these Towers is close enough to lend a general support to the cause and date above assigned for their introduction. And at the end of the ninth and the beginning of the tenth century there was in Ireland such comparative peace from the Danes as would allow time for the erection of the earliest Towers.

Further, this estimate of their date is roughly confirmed by the Annals; the earliest certain mention of a Round Tower, as being burnt, belongs to the year 950, and the first recorded builder of one—that at Tomgraney, of which no trace now remains—died in 965. (Both these passages have been already quoted.) Thus, though our information from records as to the date at which they were first built is obviously incomplete, yet, so far as it goes, it coincides with the time which other considerations indicate.

But these Towers do not all date from this period. Brian Boru, at the beginning of the eleventh century, is said to have built thirty-two of them. It is also recorded that many were erected in the time of Donogh

O'Carroll, about 1170 A.D. One was built at Annadown so late as the year 1238; and others were the work of intermediate times.

Unfortunately (as has before been noticed with regard to early Irish churches) we get little help from records in fixing the dates of typical Towers. A very large proportion of those mentioned in the Annals have perished. That the Tower of Castledermot—

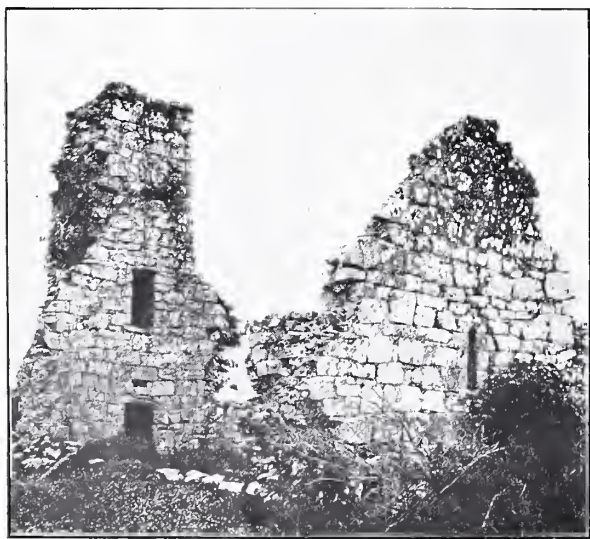


ROUND TOWER AND WEST DOOR OF CHURCH,
AGHADOE.

(See Part I., p. 188.)

"of undressed granite blocks"—was built by an abbot who died in 919 seems to be merely a tradition, though not an improbable one. The Tower of Kells was in existence in 1076, when a king was murdered in it. The notice of the Tower at Monasterboice has been already quoted. O'Rourke's Tower at Clonmacnoise was completed in 1120; its doorway has a proper arch, but is quite plain. It is obvious that the documentary evidence is insufficient for any complete classification of the Towers according to their dates; but something further must be said on this point.

Of twelfth-century Towers, that at Ardmore is an excellent and undoubted example, and it appears clearly to have been completely built at one time. It is not only of excellent regular masonry, but has a doorway with distinctly Romanesque mouldings, and bands of similar character at the points where the Tower narrows—besides its uniform taper. At the opposite end of the series, among the earliest examples, one would be inclined to place the Antrim Tower. It is built of large stones dressed very roughly or not at all (except those forming the doorway), the gaps being filled with smaller stones and mortar. Its openings are square-headed, without any trace of ornament, except the cross carved in relief above its doorway—and this is not inconsistent with an early date. But we have already seen that Irish masonry is an un-



SQUARE TOWER ATTACHED TO CHURCH,
INISCLAUN, LOUGH REF.

(See Part I., p. 189.)



O'ROURKE'S TOWER, CLONMACNOISE.
(UPPER PART REBUILT AFTER 1135.)

certain guide to dates, and it appears quite possible that a Tower of rough form may have been built 'against time' for practical purposes—in the quickest, rather than in the most perfect way then known. The possibility of this is confirmed by the comparison of a round tower—tapering, but not so high in proportion to its breadth as most of the 'ecclesiastical' Round Towers—which forms part of Lismore Castle; "it is built of rubble, or rather rag masonry," and is "as rude and early-looking as almost any of the Round Towers." But it is not older than the end of the twelfth century. However, if the Tower at Antrim should not have been actually erected somewhere about 900 A.D., it is at least reasonable to suppose that it represents fairly enough the earliest type of Tower.

As regards the Towers of intermediate type, there is great difficulty in arranging these with any certainty. Miss Stokes, in editing Lord Dunraven's *Notes on Irish Architecture*, attempted—tentatively, while confessing the great difficulty of the task—to classify all the Towers into four groups. This classification depends on the character of the masonry, the progress of the doorway from a square head towards a perfect radiating round arch, with the introduction of an 'architrave' and other ornaments to it, and on the use, in what are supposed to be the later examples, of some stone easier to work for the doorways (it often extends some distance beyond them), and for the windows. Now we have already seen that early Irish masonry is apt to mislead. Besides this, in some of these Towers it varies greatly—thus at Kildare the lower part, in rectangular blocks, is far the best. Such variety may be due to repair or

rebuilding; especially since these Towers were, as we know from facts recorded, liable to injury in sieges, and likely also to be struck by lightning, as was the case with O'Rourke's Tower, where the inferior style of masonry near its top can be explained from its recorded history. Where we have not such an account, we cannot be certain as to the cause of the variation, which is then merely confusing. As to signs of the Irish architects 'feeling their way towards the arch' (which would be more natural if they had not known finished examples abroad), these doorways are not very wide, and, with a small opening, it is easy and natural to make a sham or ornamental arch out of what is really a lintel; instances of arches which are not such in construction are not uncommon even much later in the Middle Ages—in Ireland, as in 'St. Brendan's House' at Kilmalkedar, and in the 'College' at Slane; and in England as well. This would be all the more natural since in Irish doorways the lintel lived on side by side with the arch for a long time. There are two instances at Glendalough¹⁶ of a relieving arch over the lintel, and in the doorways at Maghera and Banagher (Co. Londonderry) there is a lintel without and an arch within. One would not therefore be inclined (especially considering Irish conservatism in architecture) to attach too much importance to the fact that in the Tower at Monasterboice the arch is scooped out of a single stone, and at Dysert O'engus out of a greater number, especially when (in this last case) it is adorned with a pellet moulding. Then as to the use of a different stone for the openings, particularly the doorway, though this is probably a mark of progress, it certainly tends to make it uncertain whether alterations have been subsequently introduced. In some cases indeed, as at Dysert O'engus, the doorway has



ROUND TOWER, ANTRIM, SHOWING MASONRY.

¹⁶ See Article III.



DOORWAY OF ROUND TOWER,
DONAGHMORE, NEAR NAVAN.

ings of this Tower and of that at Ardmore, is throughout Irish architecture (with the exception, perhaps, of its thirteenth and fourteenth century buildings), a most characteristic and often a most puzzling feature. On the whole it seems that, though some general notion of the development of these Round Towers may be gained, it is impossible in very many cases to make out the exact history or date of the particular Tower.

As ornaments of the doorways, besides the simple architrave or frame, the mouldings at Ardmore, and the cross at Antrim, a crucifix appears (above the doorway) at Donaghmore, pellets or beads (as before stated) at Dysert (Engus, carved heads at Donaghmore and Kells, and elaborate Romanesque ornament

obviously not been inserted later; on the other hand at Kildare such insertion appears to me equally plain; but in other Towers changes may have been made without leaving definite signs. In the Round Tower at Devenish too, which seems to have been all built at one date, of well-cut sandstone, with fine joints, having a band of Romanesque ornament below the cap, there is a doorway "without mouldings, but the architrave projects slightly from the face of the wall." The conservatism or 'harking back,' which is most obvious, for instance, in the triangular-headed open-



ROUND TOWER, KILDARE, SHOWING
VARIETY OF MASONRY.

at Kildare and Timahoe; and this does not exhaust the varieties.

As to the Towers which deviate from the ordinary types, some of these have been incidentally mentioned. That at Dysert O'Dea diminishes by stages, like the Tower at Ardmore, but leaves these bare, not covered by bands, like minute steps. The Round Tower at Kinneigh is hexagonal for the first 18 ft. This and the Tower at Meelick (Co. Mayo) have stone floors (of flags and vaulted, respectively) in their lower stories—an improvement from a defensive point of view (especially against fire), which one would have expected to find more widely used in Ireland. The Towers at Turlough and Dromiskin are particularly broad in proportion to their height.

In the later part of the period during which Round Towers were erected (perhaps only in the twelfth and thirteenth centuries), they were also built as a part of churches. We have already seen one instance of this, in the Tower upon the roof of St. Kevin's, Glendalough¹⁷; and until less than a century ago there was, in the same place, another example. To the west end of Trinity Church (already mentioned¹⁷) a square building was added at a later time. It was roofed with a barrel vault (the spring of which can still be seen), and rose into a Tower, square for the lowest 15 ft., the rest round, and the whole reaching a height of about 60 ft. There were no buttresses; but the Tower stood until 1818, when it was blown down. At Clonmacnoise there is a very interesting Round Tower, attached to the little church called *Teamfull Finghin*,¹⁸ the date of which can be approximately determined. For the Tower, which stands south-west of the chancel, is bonded to it; their masonry (which is ashlar) shows



DOORWAY OF ROUND TOWER AND HIGH CROSS,
KELLS, CO. MEATH.

¹⁷ See Article III.

¹⁸ See illustrations, Part I.



THE ROCK OF CASHEL, WITH CORMAC'S CHAPEL, CATHEDRAL, AND ROUND TOWER.

a close similarity ; and the Round Tower has no marks whatever of a raised doorway, such as these Towers, when detached, in the vast majority of instances possessed : its only opening is into the chancel, on the ground level ; moreover, all its lower windows look more or less to the south, away from the church roof.



ROUND TOWER, CASHEL.

And the chancel arch, which will thus give the date of the Tower, is of a developed Romanesque character,¹⁹ except the innermost arch or 'order,' which is a 'restoration' made (in all reasonable probability) in the seventeenth century. The conical cap was (and is once more) built of 'herring-bone' ashlar, which has a good effect in that position. At Cashel the Round Tower (one of the perfect examples) is now connected with the north transept of the thirteenth-century cathedral ; but here the original doorway remains, 11 ft. or 12 ft. up, the Tower being no doubt a relic of the older group of buildings upon the Rock. In the church on Ireland's Eye the Tower was above the east end of the church. At Lusk church three of the corners of the western tower (which is otherwise square) are built out as tapering round towers or turrets ; in order, no doubt, to match the older Round Tower, the lower part of which now touches the church tower near its fourth corner. Most observers will agree that the Irish Round Tower is better detached. It is not easy to fit to another building, and the frequent attempt to keep something like the height of those Towers which stand by themselves makes its proportion to a small church below almost an absurdity.

We have seen the origin of these Round Towers, and others were probably copied from them. There is one, for instance, near Peel Castle, in the Isle of Man, which has to a considerable extent lost its original Irish character through 'restoration.' In Scotland there is one at Abernethy and another at Brechin. These are detached. In the Orkney islands,

¹⁹ The question as to the date of Irish Romanesque work in general will be considered later.

on Egilsey a Round Tower is attached to the west end of the old church there, and at Deerness there were two towers of this kind in a similar position. There were other examples in Shetland, now destroyed. The connection of Scotland with Ireland in things ecclesiastical is, of course, natural, and more or less persistent.

The round towers in Norfolk and Suffolk, whether attached to the west end of a church, as at Thorington, or standing near it, as at Bramfield (both these places are near Halesworth and Darsham), do not at all closely resemble the Irish type. Many of them are of the twelfth century. Whether their builders knew or did not know of the examples in Ireland, the form of these towers is no doubt largely due to the want of good building-stone in that district for corners; but (as we have seen) round towers must have been not uncommon in other parts of Europe at the time when these were built.

As for the building of towers apart from their church, some instances of this, outside of Ireland, have been mentioned above, and such towers were sometimes erected down to a late period in the Middle Ages.



ROUND TOWER AND CATHEDRAL, KILKENNY.



DOORWAY OF ROUND TOWER AND SOUTH-WEST CORNER OF CHURCH, MONASTERBOICE.

The late Gothic tower at Chichester is a well-known example, and there is one too at Beccles. There was also a bell-tower in the churchyard of Old St. Paul's—the Jesus Tower—which, with its bells, was gambled away by Henry VIII., and pulled down in consequence.

It is difficult to avoid suspecting that the high, slender, and sometimes tapering square towers, many of which were built in Ireland in the late Middle Ages (as at Quin Abbey), were, partially at least, suggested by the example of those similar Round Towers, which were even more numerous then than they are at the present time.

ARTHUR C. CHAMPNEYS.

[The illustrations of O'Rourke's Tower and of that at Iniscleraun are by Langfier, Limited. The rest are from photographs taken by the writer, developed and printed by Messrs. Seaman, Ilkeston.]

(To be continued.)

Books.

THE LAW OF LIGHT AND AIR.

The Law of Light and Air. By Alfred A. Hudson and Arnold Inman. Second Edition. Price 6s. London: Estates Gazette, Ltd., 6, St. Bride Street, E.C.

THE second edition of "Hudson on Light and Air" has been hastened by the decision of the House of Lords in the now famous case of "Colls v. The Home and Colonial Stores." That decision so largely changed the law relating to light that it immediately rendered any work on the subject to a great extent obsolete. The authors have now revised, and, so far as necessary, remodelled the first edition, and have brought it up to date, adding several new cases. The new edition will be a valuable aid to surveyors and lawyers.

HYGIENE.

Hygiene. By J. Lane Notter, M.A., M.D., and R. N. Firth, Lieut.-Col., R.A.M.C. Sixth edition. Price 4s. 6d. London: Longmans, Green & Co., 39, Paternoster Row. 1905.

THERE is not much in this book of direct concern to architecture, but there is much information of great value to architects on the scientific or constructional side of their work—more especially Chapters IV. and V. on household sanitation, sewage and refuse disposal. Other chapters on cubic space, warming and heating, etc., contain a vast amount of useful information. The book is extraordinarily comprehensive, and its value may be gauged from the fact that it has run through six editions in ten years.

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